

# SERVICE MANUAL

# CPD-E200

CPD-E200

*US Model*

*Canadian Model*

Chassis No. SCC-L31A-A



## D99C CHASSIS

### SPECIFICATIONS

<b>Picture tube</b>	0.244-0.250 mm aperture grill pitch 17 inches measured diagonally 90-degree deflection	<b>Deflection frequency</b>	Horizontal: 30 to 85 KHz Vertical: 48 to 120 Hz
<b>Video image area</b>	(16" maximum viewing image) Approx. 328 X 242 mm (w/h) (14 <sup>1/4</sup> x 9 <sup>5/8</sup> inches)	<b>AC input voltage / current</b>	100 to 120 V, 50/60 Hz, 1.7A 220 to 240V, 50/60Hz, 0.9A
<b>Resolution</b>	Horizontal: Max. 1600 dots Vertical: Max. 1200 lines	<b>Dimensions</b>	404 x 414 x 420mm (w/h/d) (15 <sup>15/16</sup> x 16 <sup>3/8</sup> x 16 <sup>1/2</sup> inches)
<b>Standard image area</b>	Approx. 312 x 234 mm (w/h) (12 <sup>1/4</sup> x 9 <sup>1/4</sup> inches)	<b>Mass</b>	Approx. 18.8 kg (41 lb 7 oz.)
<b>Input signal</b>		<b>Plug and Play</b>	DDC/DDC2B, DDC2Bi, GTF
<b>Video</b>	Analog RGB (75 ohms typical) 0.7 Vp-p, ±5%, Positive		
<b>Sync</b>	Separate HD/VD, TTL Polarity Free External Composite, TTL Polarity Free (2K ohms impedance)		

*Design and specifications are subject to change without notice.*



TRINITRON® COLOR MONITOR  
**SONY®**

## POWER MANAGEMENT

The power saving mode complies with the VESA Display Power Management Signaling standard. Each state of power management shall be activated by the host computer terminating the appropriate sync signals. Blanking the video must precede termination of the sync signals. The elapsed time counter shall also be controlled by the host computer. Reactivation of the monitor shall be accomplished from the host computer by re-establishing the normal sync signal.

Power consumption mode	Screen (video)	Horizontal sync signal	Vertical sync signal	Power consumption	Recovery time	indicator
1 Normal operation	active	yes	yes	$\leq 120$ W	--	Green
2 Standby (1st mode)	blank	no	yes	$\leq 15$ W	Approx. 5 sec.	Green and Orange Alternate
3 Suspend (2nd mode)	blank	yes	no	$\leq 15$ W	Approx. 5 sec.	Green and Orange Alternate
4 Active-off (3rd mode)	blank	no	no	$\leq 3$ W	Approx. 10 sec.	Orange
5 Power-off	--	--	--	0 W	--	Off

## SELF DIAGNOSIS FUNCTION

When a failure occurs, the STANDBY/TIMER lamp will flash a set number of times to indicate the possible cause of the problem. If there is more than one error, the lamp will identify the first of the problem areas.

	Status	Area of Failure	LED Indication
1	Failure 1	HV or +B	Amber (0.5 second)/Off (0.5 second)
2	Failure 2	H Stop or V Stop	Amber (1.5 second)/Off (0.5 second)
3	Failure 3	ABL	Amber (0.5 second)/Off (1.5 second)
4	Aging/Self Test		Amber (0.5 second)/Off (0.5 second)/ Green (0.5 second)/Off (0.5 second)

## TIMING SPECIFICATION

TIMING SPECIFICATION								
MODE	1	2	3	4	5	6	7	8
Resolution (H x V)	640 X 480	800 X 600	832 X 624	1024 X 768	1024 X 768	720 X 400	640 X 480	1280 X 1024
Dot Clock (MHz)	25.175	56.250	57.283	78.750	94.500	28.322	36.000	135.000
<b>HORIZONTAL</b>								
Hor. Freq. (kHz)	31.469	53.674	49.725	60.023	68.677	31.469	43.269	79.976
H-Total	31.778	18.631	20.111	16.660	14.561	31.777	23.111	12.504
H-Blanking	6.356	4.409	5.586	3.657	3.725	6.355	5.333	3.022
H-Front Porch	0.636	0.569	0.559	0.203	0.508	0.636	1.556	0.119
H-Sync.	3.813	1.138	1.117	1.219	1.016	3.813	1.556	1.067
H-Back Porch	1.907	2.702	3.910	2.235	2.201	1.907	2.222	1.837
H-Active ( $\mu$ sec)	25.422	14.222	14.524	13.003	10.836	25.422	17.778	9.481
<b>VERTICAL</b>								
Ver. Freq. (Hz)	59.940	85.061	74.550	75.029	84.997	70.087	85.008	75.025
V-Total	525	631	667	800	808	449	509	1066
V-Blanking	45	31	43	32	40	49	29	42
V-Front Porch	10	1	1	1	1	12	1	1
V-Sync.	2	3	3	3	3	2	3	3
V-Back Porch	33	27	39	28	36	35	25	38
V-Active (lines)	480	600	624	768	768	400	480	1024
<b>SYNC.</b>								
Int (G)	No	No	No	No	No	No	No	No
Ext (H/V)/Polarity	Yes -/-	No +/+	Yes -/-	Yes +/+	Yes +/+	Yes -/-	Yes -/-	Yes +/+
Ext (CS)/Polarity	No	No	No	No	No	No	No	No
Int/Non Int	Non Int	Non Int	Non Int	Non Int	Non Int	Non Int	Non Int	Non Int

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## SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Check that all control knobs, shields, covers, ground straps, and mounting hardware have been replaced. Be absolutely certain that you have replaced all the insulators.
4. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
5. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
6. Check the line cords for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
7. Check the B+ and HV to see if they are specified values. Make sure your instruments are accurate; be suspicious of your HV meter if sets always have low HV.
8. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC Leakage. Check leakage as described below.

### Leakage Test

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampere). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instructions.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low voltage scale. The Simpson's 250 and Sanwa SH-63Trd are examples of passive VOMs that are suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Figure A)

### WARNING!!

**NEVER TURN ON THE POWER IN A CONDITION IN WHICH THE DEGAUSS COIL HAS BEEN REMOVED.**

### SAFETY-RELATED COMPONENT WARNING!!

**COMPONENTS IDENTIFIED BY SHADING AND MARK  $\triangle$  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL FOR SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL FOR SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.**

### AVERTISSEMENT!!

**NE JAMAIS METTRE SOUS TENSION QUAND LA BOBINE DE DEMAGNETISATION EST ENLEVEE.**

### ATTENTION AUX COMPOSANTS RELATIFS A LA SECURITE!!

**LES COMPOSANTS IDENTIFIES PAR UNE TRAME ET PAR UNE MARQUE  $\triangle$  SUR LES SCHEMAS DE PRINCIPE, LES VUES EXPLOSEES ET LES LISTES DE PIECES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SECURITE DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMERO DE PIECE EST INDIQUE DANS LE PRESENT MANUEL OU DANS DES SUPPLEMENTS PUBLIES PAR SONY. LES REGLAGES DE CIRCUIT DONT L'IMPORTANCE EST CRITIQUE POUR LA SECURITE DU FONCTIONNEMENT SONT IDENTIFIES DANS LE PRESENT MANUEL. SUIVRE CES PROCEDURES LORS DE CHAQUE REMPLACEMENT DE COMPOSANTS CRITIQUES, OU LORSQU'UN MAUVAIS FONCTIONNEMENT SUSPECTE.**

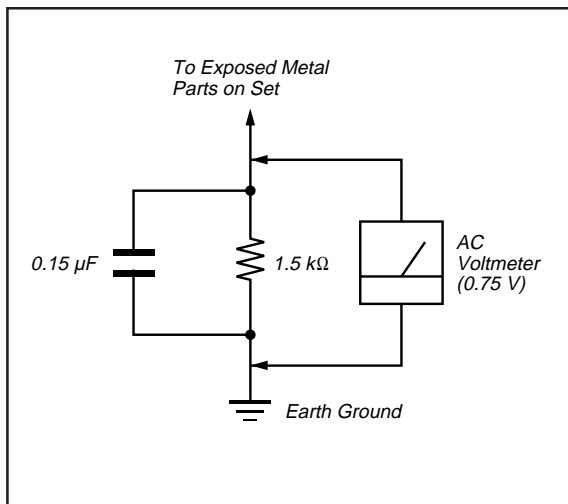


Figure A



SECTION 1  
GENERAL

The following are partial abstracts from the Operating Instruction Manual. The page numbers shown reflect those of the Operating Instruction Manual.

Precautions

Warning on power connections

- Use the supplied power cord. If you use a different power cord, be sure that it is compatible with your local power supply.
- For the customers in the U.S.A.**  
If you do not use the appropriate cord, this monitor will not conform to mandatory FCC standards.

Example of plug types



for 100 to 120 V AC



for 200 to 240 V AC

- Before disconnecting the power cord, wait at least 30 seconds after turning off the power to allow the static electricity on the screen's surface to discharge.
- After the power is turned on, the screen is demagnetized (degaussed) for about 5 seconds. This generates a strong magnetic field around the screen which may affect data stored on magnetic tapes and disks placed near the monitor. Be sure to keep magnetic recording equipment, tapes, and disks away from the monitor.

The equipment should be installed near an easily accessible outlet.

Installation

- Do not install the monitor in the following places:
  - on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies, etc.) that may block the ventilation holes
  - near heat sources such as radiators or air ducts, or in a place subject to direct sunlight
  - in a place subject to severe temperature changes
  - in a place subject to mechanical vibration or shock
  - on an unstable surface
  - near equipment which generates magnetism, such as a transformer or high voltage power lines
  - near or on an electrically charged metal surface

Maintenance

- Clean the screen with a soft cloth. If you use a glass cleaning liquid, do not use any type of cleaner containing an anti-static solution or similar additive as this may scratch the screen's coating.
- Do not rub, touch, or tap the surface of the screen with sharp or abrasive items such as a ballpoint pen or screwdriver. This type of contact may result in a scratched picture tube.
- Clean the cabinet, panel and controls with a soft cloth lightly moistened with a mild detergent solution. Do not use any type of abrasive pad, scouring powder or solvent, such as alcohol or benzene.

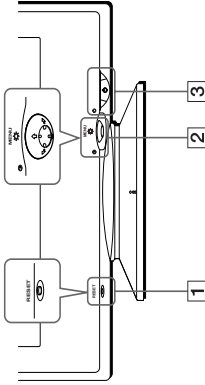
Transportation

When you transport this monitor for repair or shipment, use the original carton and packing materials.

Identifying parts and controls

See the pages in parentheses for further details.

Front



1 RESET button (page 12)

This button resets the adjustments to the factory settings.

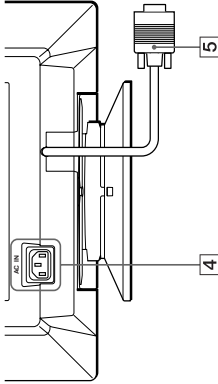
2 Control button (page 9)

The control button is used to display the menu and make adjustments to the monitor, including brightness and contrast adjustments.

3 (power) switch and indicator (pages 7, 13, 16)

This button turns the monitor on and off. The power indicator lights up in green when the monitor is turned on, and either flashes in green and orange, or lights up in orange when the monitor is in power saving mode.

Rear



4 AC IN connector (page 6)

This connector provides AC power to the monitor.

5 Video input connector (HD15) (page 6)

This connector inputs RGB video signals (0.700 Vp-p, positive) and sync signals.



Pin No.	Signal
1	Red
2	Green (Sync on Green)
3	Blue
4	ID (Ground)
5	DDC Ground*
6	Red Ground
7	Green Ground
8	Blue Ground
9	—
10	Ground
11	ID (Ground)
12	Bi-Directional Data (SDA)*
13	H. Sync
14	V. Sync
15	Data Clock (SCL)*

\* DDC (Display Data Channel) is a standard of VESA.

Setup

Before using your monitor, check that the following accessories are included in your carton:

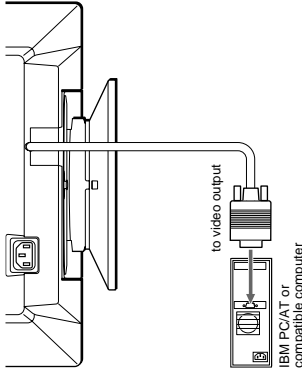
- Power cord (1)
- Windows Monitor Information Disk (1)
- Warranty card (1)
- Notes on cleaning the screen's surface (1)
- This instruction manual (1)
- Information sheet for Macintosh users (1)

Step 1: Connect your monitor to your computer

Turn off the monitor and computer before connecting.

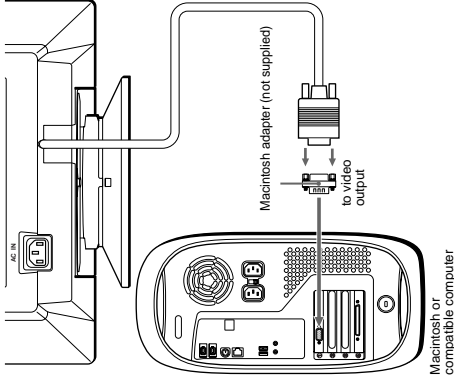
**Note**  
Do not touch the pins of the video cable connector as this might bend the pins.

Connecting to an IBM PC/AT or compatible computer



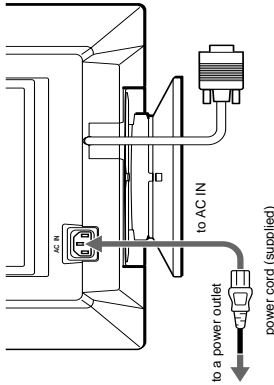
Connecting to a Macintosh or compatible computer

You will need a Macintosh adapter (not supplied).



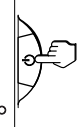
Step 2: Connect the power cord

With the monitor and computer switched off, first connect the power cord to the monitor, then connect it to a power outlet.



Step 3: Turn on the monitor and computer

First turn on the monitor, then turn on the computer.



The installation of your monitor is complete.

If necessary, use the monitor's controls to adjust the picture.

If no picture appears on your screen

- Check that the monitor is correctly connected to the computer.
- If NO INPUT SIGNAL appears on the screen, confirm that the video signal cable is properly connected and all plugs are firmly seated in their sockets.
- If MONITOR IS IN POWER SAVE MODE appeared on the screen, try pressing any key on the computer keyboard.
- If you are replacing an old monitor with this model and old OF SCAN RANGE appears on the screen, reconnect the old monitor. Then adjust the computer's graphic board so that the horizontal frequency is between 30 – 85 kHz, and the vertical frequency is between 48 – 120 Hz.

For more information about the on-screen messages, see "Trouble symptoms and remedies" on page 14.

For customers using Windows 95/98

To maximize the potential of your monitor, install the new model information file from the supplied Windows Monitor Information Disk onto your PC.

This monitor complies with the "VESA DDC" Plug & Play standard. If your PC graphics board complies with DDC, select "Plug & Play Monitor (VESA DDC)" or this monitor's model name as the monitor type in the "Control Panel" of Windows 95/98. If your PC graphics board has difficulty communicating with this monitor, load the Windows Monitor Information Disk and select this monitor's model name as the monitor type.

For customers using Windows NT4.0

Monitor setup in Windows NT4.0 is different from Windows 95/98 and does not involve the selection of monitor type. Refer to the Windows NT4.0 instruction manual for further details on adjusting the resolution, refresh rate, and number of colors.

Adjusting the monitor's resolution and color number

Adjust the monitor's resolution and color number by referring to your computer's instruction manual. The color number may vary according to your computer or video board. The color palette setting and the actual number of colors are as follows:

- High Color (16 bit) → 65,536 colors
- True Color (24 bit) → about 16.77 million colors

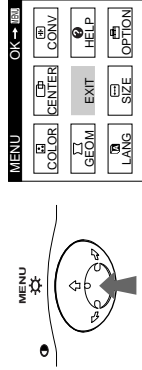
In true color mode (24 bit), speed may be slower.

Selecting the on-screen menu language (LANG)

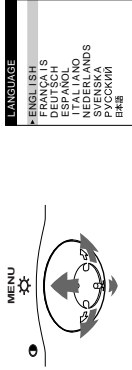
English, French, German, Spanish, Italian, Dutch, Swedish, Russian and Japanese versions of the on-screen menus are available. The default setting is English.

1 Press the center of the control button.

See page 9 for more information on using the control button.



2 Move the control button to highlight LANG and press the center of the control button again.



3 Move the control button ↓/↑ to select a language.

- ENGLISH
- FRANCAIS: French
- DEUTSCH: German
- ESPAOL: Spanish
- ITALIANO: Italian
- NEDERLANDS: Dutch
- SVENSKA: Swedish
- RYCCCKИЙ: Russian
- 日本語: Japanese

To close the menu

Press the center of the control button once to return to the main MENU, and twice to return to normal viewing. If no buttons are pressed, the menu closes automatically after about 30 seconds.

To reset to English

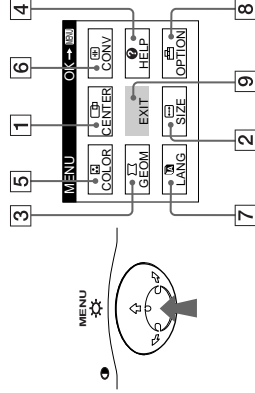
Press the RESET button while the LANGUAGE menu is displayed on the screen.

## Customizing Your Monitor

You can make numerous adjustments to your monitor using the on-screen menu.

### Navigating the menu

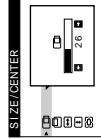
Press the center of the control button to display the main MENU on your screen. See page 9 for more information on using the control button.



Use the control button to select one of the following menus.

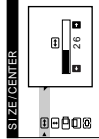
#### 1 CENTER (page 9)

Selects the CENTER menu to adjust the picture's centering, size or zoom.



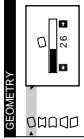
#### 2 SIZE (page 9)

Selects the SIZE menu to adjust the picture's size, centering or zoom.



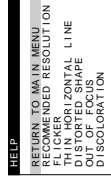
#### 3 GEOM (page 10)

Selects the GEOM menu to adjust the picture's rotation and shape.



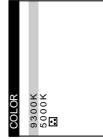
#### 4 HELP (page 12)

Selects the HELP menu to display helpful hints and information about this monitor.



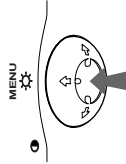
#### 5 COLOR (page 10)

Selects the COLOR menu to adjust the picture's color temperature. You can use this to match the monitor's colors to a printed picture's colors.



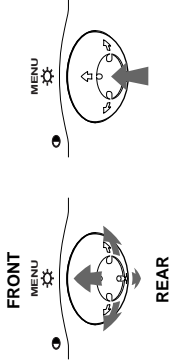
### ■ Using the control button

- 1 **Display the main MENU.**  
Press the center of the control button to display the main MENU on your screen.



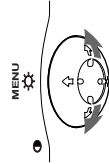
- 2 **Select the menu you want to adjust.**

Highlight the desired menu by moving the control button towards the rear to go up (↑), towards the front to go down (↓), and left (←) or right (→) to move sideways.



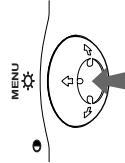
- 3 **Adjust the menu.**

Move the control button left (←) or right (→) to make the adjustment.



- 4 **Close the menu.**

Press the center of the control button once to return to the main MENU, and twice to return to normal viewing. If no buttons are pressed, the menu closes automatically after about 30 seconds.



### ■ Resetting the adjustments

Press the RESET button. See page 12 for more information on resetting the adjustments.

#### RESET



## Adjusting the brightness and contrast

Brightness and contrast adjustments are made using a separate BRIGHTNESS/CONTRAST menu.

- 1 **Move the control button in any direction.**  
The BRIGHTNESS/CONTRAST menu appears on the screen.



- 2 **Move the control button ↑/↓ to adjust the brightness (☺), and ←/→ to adjust the contrast (☹).**  
The menu automatically disappears after about 3 seconds.

## Adjusting the centering of the picture (CENTER)

This setting is stored in memory for the current input signal.

- 1 **Press the center of the control button.**

The main MENU appears on the screen.

- 2 **Move the control button to highlight ☐ CENTER and press the center of the control button again.**

The SIZE/CENTER menu appears on the screen.

- 3 **First move the control button ↑/↓ to select ☐ for horizontal adjustment, or ☐ for vertical adjustment. Then move the control button ←/→ to adjust the centering.**

## Adjusting the size of the picture (SIZE)

This setting is stored in memory for the current input signal.

- 1 **Press the center of the control button.**

The main MENU appears on the screen.

- 2 **Move the control button to highlight ☐ SIZE and press the center of the control button again.**

The SIZE/CENTER menu appears on the screen.

- 3 **First move the control button ↑/↓ to select ☐ for horizontal adjustment, or ☐ for vertical adjustment. Then move the control button ←/→ to adjust the size.**

### Enlarging or reducing the picture (ZOOM)

This setting is stored in memory for the current input signal.

- 1 Press the center of the control button.  
The main MENU appears on the screen.
- 2 Move the control button  $\uparrow/\downarrow$  to highlight  $\boxed{\text{SIZE}}$  or  $\boxed{\text{CENTER}}$  and press the center of the control button again.  
The SIZE/CENTER menu appears on the screen.

- 3 Move the control button  $\uparrow/\downarrow$  to select  $\boxed{\text{ZOOM}}$  and move  $\leftarrow/\rightarrow$  to enlarge or reduce the picture.

- Notes
- Adjustment stops when either the horizontal or vertical size reaches its maximum or minimum value.
  - The horizontal adjustment value is not displayed in the menu.

### Adjusting the shape of the picture (GEOM)

The GEOM settings allow you to adjust the rotation and shape of the picture.  
The  $\boxed{\text{ROT}}$  (rotation) setting is stored in memory for all input signals. All other settings are stored in memory for the current input signal.

- 1 Press the center of the control button.  
The main MENU appears on the screen.
- 2 Move the control button to highlight  $\boxed{\text{GEOM}}$  and press the center of the control button again.  
The GEOMETRY menu appears on the screen.
- 3 First move the control button  $\uparrow/\downarrow$  to select the desired adjustment item. Then move the control button  $\leftarrow/\rightarrow$  to make the adjustment.

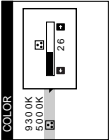
Select	To
$\boxed{\text{ROT}}$	rotate the picture
$\boxed{\text{EXP}}$	expand or contract the picture sides
$\boxed{\text{POS}}$	shift the picture sides to the left or right
$\boxed{\text{WID}}$	adjust the picture width at the top of the screen
$\boxed{\text{HGT}}$	shift the picture to the left or right at the top of the screen

### Adjusting the color of the picture (COLOR)

The COLOR settings allow you to adjust the picture's color temperature by changing the color level of the white color field. Colors appear reddish if the temperature is low, and bluish if the temperature is high. This adjustment is useful for matching the monitor's colors to a printed picture's colors.  
This setting is stored in memory for all input signals.

- 1 Press the center of the control button.  
The main MENU appears on the screen.
- 2 Move the control button to highlight  $\boxed{\text{COLOR}}$  and press the center of the control button again.  
The COLOR menu appears on the screen.
- 3 Move the control button  $\uparrow/\downarrow$  to select a color temperature.  
The preset color temperatures are 5000K and 9300K. Since the default setting is 9300K, the whites will change from a bluish hue to a reddish hue as the temperature is lowered to 5000K.

- 4 If necessary, fine tune the color temperature.  
You can select your own color temperature between 9300K and 5000K.  
First move the control button  $\uparrow/\downarrow$  to select  $\boxed{\text{ZT}}$ . Then move the control button  $\leftarrow/\rightarrow$  to adjust the color temperature.



### Adjusting the convergence (CONV)

The CONV settings allow you to adjust the quality of the picture by controlling the convergence. The convergence refers to the alignment of the red, green, and blue color signals.  
If you see red or blue shadows around letters or lines, adjust the convergence.  
These settings are stored in memory for all input signals.

- 1 Press the center of the control button.  
The main MENU appears on the screen.
- 2 Move the control button to highlight  $\boxed{\text{CONV}}$  and press the center of the control button again.  
The CONVERGENCE menu appears on the screen.
- 3 First move the control button  $\uparrow/\downarrow$  to select  $\boxed{\text{RE}}$  for horizontal adjustment, or  $\boxed{\text{GR}}$  for vertical adjustment. Then move the control button  $\leftarrow/\rightarrow$  to adjust the convergence.

### Additional settings (OPTION)

You can manually degauss (demagnetize) the monitor, adjust the moire cancellation level, change the menu position, and lock the controls.

- 1 Press the center of the control button.  
The main MENU appears on the screen.
- 2 Move the control button to highlight  $\boxed{\text{OPTION}}$  and press the center of the control button again.  
The OPTION menu appears on the screen.
- 3 Move the control button  $\uparrow/\downarrow$  to select the desired adjustment item.  
Adjust the selected item according to the following instructions.

- Degaussing the screen  
The monitor is automatically demagnetized (degaussed) when the power is turned on.  
To manually degauss the monitor, first move the control button  $\uparrow/\downarrow$  to select  $\boxed{\text{DEGAUSS}}$ . Then move the control button  $\rightarrow$ .  
The screen is degaussed for about 5 seconds. If a second degauss cycle is needed, allow a minimum interval of 20 minutes for the best result.

- Adjusting the moire\*  
If elliptical or wavy patterns appear on the screen, adjust the moire cancellation level.  
To adjust the amount of moire cancellation, first move the control button  $\uparrow/\downarrow$  to select  $\boxed{\text{MOIRE ADJUST}}$ . Then move the control button  $\leftarrow/\rightarrow$  until the moire effect is at a minimum.

\* Moire is a type of natural interference which produces soft, wavy lines on your screen. It may appear due to interference between the pattern of the picture on the screen and the phosphor pitch pattern of the monitor.



Example of moire

### Changing the menu's position

Change the menu's position if it is blocking an image on the screen.

To change the menu's on-screen position, first move the control button  $\uparrow/\downarrow$  to select  $\boxed{\text{OSD H POSITION}}$  for horizontal adjustment, or  $\boxed{\text{OSD V POSITION}}$  for vertical adjustment. Then move the control button  $\leftarrow/\rightarrow$  to shift the on-screen menu.

### Locking the controls

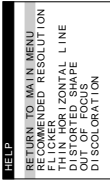
To protect adjustment data by locking the controls, first move the control button  $\uparrow/\downarrow$  to select  $\boxed{\text{CONTROL LOCK}}$ . Then move the control button  $\rightarrow$  to select ON. Only the  $\boxed{\text{CONTROL LOCK}}$  (power) switch, EXT, and  $\boxed{\text{CONTROL LOCK}}$  of the  $\boxed{\text{OPTION}}$  menu will operate. If any other items are selected, the  $\boxed{\text{CONTROL LOCK}}$  mark appears on the screen.

To cancel the control lock  
Repeat the procedure above and set  $\boxed{\text{CONTROL LOCK}}$  to OFF.

## Helpful hints and information (HELP)

The HELP menu contains helpful hints and information about this monitor. If your monitor is displaying symptoms that match those listed in the HELP menu, follow the on-screen instructions to resolve the problem. If the symptoms do not match those listed in the HELP menu or if the problem persists, see "Trouble symptoms and remedies" on page 14.

- 1 Press the center of the control button.  
The main MENU appears on the screen.
- 2 Move the control button to highlight **HELP** and press the center of the control button again.  
The following HELP menu appears on the screen.



- 3 Move the control button **↑/↓** to select a **HELP** menu item and press the center of the control button again.  
Instructions or information to resolve the problem appears on the screen. An explanation of each menu item is given below.

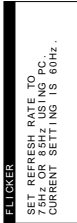
### RECOMMENDED RESOLUTION

If the picture does not fill the screen to the edges or if the picture appears too large for the screen, adjust the resolution to the figures shown in the menu using your computer. If the input signal matches one of this monitor's factory preset modes, the resolution and refresh rate of the current input signal are displayed.



### FLICKER

If the picture is flickering, adjust the refresh rate to figures shown in the menu. If the input signal matches one of this monitor's factory preset modes, the refresh rate of the current input signal is displayed.



### THIN HORIZONTAL LINE

The lines that appear on your screen are damper wires. See page 13 for more information about the damper wires.

### DISTORTED SHAPE

If the shape of the picture on the screen seems distorted, try adjusting the picture's geometry. Move the control button **→** to jump directly to the GEOMETRY menu.

### OUT OF FOCUS

The picture may seem to be out of focus when the red and blue color signals are not aligned properly, causing red or blue shadows to appear around letters and lines. Try adjusting the picture's convergence to make the shadows disappear. Move the control button **→** to jump directly to the CONVERGENCE menu. When the CONVERGENCE menu is displayed, the contrast, brightness and noise adjustment settings are automatically reset for all input signals.

### DISCOLORATION

If the picture's color appears abnormal in certain areas of the screen, first check for any loose signal cables. After you have checked the cables, try degaussing (demagnetizing) the screen manually. Move the control button **→** to jump directly to the OPTION menu, then select **D** (DEGAUSS).

## Resetting the adjustments

This monitor has the following three reset methods. Use the RESET button to reset the adjustments.

### RESET



### Resetting a single adjustment item

Use the control button to select the adjustment item you want to reset, and press the RESET button.

### Resetting all of the adjustment data for the current input signal

Press the RESET button when no menu is displayed on the screen.

- Note that the following items are not reset by this method:
- on-screen menu language (page 7)
  - on-screen menu position (page 11)
  - control lock (page 11)

### Resetting all of the adjustment data for all input signals

Press and hold the RESET button for more than two seconds.

#### Note

The RESET button does not function when **ON** (CONTROL LOCK) is set to ON.

## Technical Features

### Preset and user modes

When the monitor receives an input signal, it automatically matches the signal to one of the factory preset modes stored in the monitor's memory to provide a high quality picture at the center of the screen. (See Appendix for a list of the factory preset modes.) For input signals that do not match one of the factory preset modes, the digital Multiscan technology of this monitor ensures that a clear picture appears on the screen for any timing in the monitor's frequency range (horizontal: 30 – 85 MHz, vertical: 48 – 120 Hz). If the picture is adjusted, the adjustment data is stored as a user mode and automatically recalled whenever the same input signal is received.

### Note for Windows users

For Windows users, check your video board manual or the utility program which comes with your graphic board and select the highest available refresh rate to maximize monitor performance.

## Power saving function

This monitor meets the power-saving guidelines set by VESA, ENERGY STAR, and NUTEK. If the monitor is connected to a computer or video graphics board that is DPMS (Display Power Management Signaling) compliant, the monitor will automatically reduce power consumption in three stages as shown below.

Power mode	Power consumption	(power) indicator
normal operation	≤ 120 W	green
1 standby	≤ 15 W	green and orange alternate
2 suspend (sleep)*	≤ 15 W	green and orange alternate
3 active off** (deep sleep)*	≤ 3 W	orange
power off	0 W	off

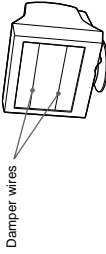
- \* "Sleep" and "deep sleep" are power saving modes defined by the Environmental Protection Agency.
- \*\* When your computer is in a power saving mode, MONITOR IS IN POWER SAVE MODE appears on the screen if you press any button on the monitor. After a few seconds, the monitor enters the power saving mode again.
- \*\*\* Power consumption of 0 W is achievable by disconnecting the power cord from the power outlet.

## Troubleshooting

Before contacting technical support, refer to this section.

### If thin lines appear on your screen (damper wires)

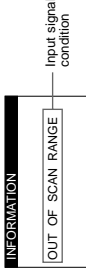
The lines you are experiencing on your screen are normal for the Tritron monitor and are not a malfunction. These are shadows from the damper wires used to stabilize the aperture grille and are most noticeable when the screen's background is light (usually white). The aperture grille is the essential element that makes a Tritron picture tube unique by allowing more light to reach the screen, resulting in a brighter, more detailed picture.



Damper wires

## On-screen messages

If no picture appears on the screen, one of the following messages appears on the screen. To solve the problem, see "Trouble symptoms and remedies" on page 14.



### The input signal condition OUT OF SCAN RANGE

Indicates that the input signal is not supported by the monitor's specifications.

### NO INPUT SIGNAL

Indicates that no signal is input.

### MONITOR IS IN POWER SAVE MODE

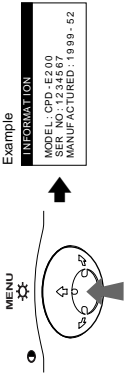
Indicates that the computer is in power saving mode. This message is displayed only when your computer is in a power saving mode and you press any one of the buttons on the monitor.

Symptom	Check these items
<b>Picture is ghosting</b>	<ul style="list-style-type: none"><li>• Eliminate the use of video cable extensions and/or video switch boxes.</li><li>• Check that all plugs are firmly seated in their sockets.</li></ul>
<b>Picture is not centered or sized properly</b>	<ul style="list-style-type: none"><li>• Adjust the size (page 9) or centering (page 9). Note that some video modes do not fill the screen to the edges.</li></ul>
<b>Edges of the image are curved</b>	<ul style="list-style-type: none"><li>• Adjust the geometry (page 10).</li></ul>
<b>Wavy or elliptical pattern (moire) is visible</b>	<ul style="list-style-type: none"><li>• Select MOIRE ADJUST and adjust the moire cancellation effect (page 11).</li></ul> <p>■ <b>Problems caused by the connected computer or other equipment</b></p> <ul style="list-style-type: none"><li>• Change your desktop pattern.</li></ul>
<b>Color is not uniform</b>	<ul style="list-style-type: none"><li>• Degauss the monitor* (page 11). If you place equipment that generates a magnetic field, such as a speaker, near the monitor, or if you change the direction the monitor faces, color may lose uniformity.</li></ul>
<b>White does not look white</b>	<ul style="list-style-type: none"><li>• Adjust the color temperature (page 10).</li></ul>
<b>Letters and lines show red or blue shadows at the edges</b>	<ul style="list-style-type: none"><li>• Adjust the convergence (page 10).</li></ul>
<b>Monitor buttons do not operate</b>	<ul style="list-style-type: none"><li>• If the control lock is set to ON, set it to OFF (page 11).</li></ul>
<b>A hum is heard right after the power is turned on</b>	<ul style="list-style-type: none"><li>• This is the sound of the auto-degauss cycle. When the power is turned on, the monitor is automatically degaussed for five seconds.</li></ul>

\* If a second degauss cycle is needed, allow a minimum interval of 20 minutes for the best result. A humming noise may be heard, but this is not a malfunction.

**Displaying this monitor's name, serial number, and date of manufacture.**

While the monitor is receiving a video signal, press and hold the center of the control button for more than five seconds to display this monitor's information box.

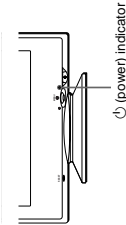


Symptom	Check these items
<b>No picture</b>	<ul style="list-style-type: none"><li>• Check that the power cord is properly connected.</li><li>• Check that the (power) switch is in the "on" position.</li></ul>
<b>If the NO INPUT SIGNAL message appears on the screen, or if the (power) indicator is either orange or alternating between green and orange</b>	<ul style="list-style-type: none"><li>• Check that the video signal cable is properly connected and all plugs are firmly seated in their sockets (page 6).</li><li>• Check that the HD15 video input connector's pins are not bent or pushed in.</li></ul> <p>■ <b>Problems caused by the connected computer or other equipment</b></p> <ul style="list-style-type: none"><li>• Check that the computer's power is "on."</li><li>• Check that the graphic board is completely seated in the proper bus slot.</li></ul>
<b>If the MONITOR IS IN POWER SAVE MODE message appeared on the screen, or if the (power) indicator is either orange or alternating between green and orange</b>	<p>■ <b>Problems caused by the connected computer or other equipment</b></p> <ul style="list-style-type: none"><li>• The computer is in power saving mode. Try pressing any key on the computer keyboard.</li><li>• Check that the computer's power is "on."</li><li>• Check that the graphic board is completely seated in the proper bus slot.</li></ul>
<b>If the OUT OF SCAN RANGE message appears on the screen</b>	<p>■ <b>Problems caused by the connected computer or other equipment</b></p> <ul style="list-style-type: none"><li>• Check that the video frequency range is within that specified for the monitor. If you replaced an old monitor with this monitor, reconnect the old monitor and adjust the frequency range to the following: Horizontal: 30 – 85 kHz Vertical: 48 – 120 Hz</li></ul> <ul style="list-style-type: none"><li>• Use the Self-diagnosis function (page 16).</li></ul>
<b>If no message is displayed and the (power) indicator is green or flashing orange</b>	<ul style="list-style-type: none"><li>• If you replaced an old monitor with this monitor, reconnect the old monitor and do the following. Install the Windows Monitor Information Disk (page 7) and select this monitor ("CPD-E200") from among the Sony monitors in the Windows 95/98 monitor selection screen.</li></ul>
<b>If using Windows 95/98</b>	<ul style="list-style-type: none"><li>• Check that the Macintosh adapter (not supplied) and the video signal cable are properly connected (page 6).</li></ul>
<b>If using a Macintosh system</b>	<ul style="list-style-type: none"><li>• Isolate and eliminate any potential sources of electric or magnetic fields such as other monitors, laser printers, electric fans, fluorescent lighting, or televisions.</li><li>• Move the monitor away from power lines or place a magnetic shield near the monitor.</li><li>• Try plugging the monitor into a different AC outlet, preferably on a different circuit.</li><li>• Try turning the monitor 90° to the left or right.</li></ul>
<b>Picture flickers, bounces, oscillates, or is scrambled</b>	<p>■ <b>Problems caused by the connected computer or other equipment</b></p> <ul style="list-style-type: none"><li>• Check your graphics board manual for the proper monitor setting.</li><li>• Confirm that the graphics mode (VESA, Macintosh 16" Color, etc.) and the frequency of the input signal are supported by this monitor (Appendix). Even if the frequency is within the proper range, some video boards may have a sync pulse that is too narrow for the monitor to sync correctly.</li><li>• Adjust the computer's refresh rate (vertical frequency) to obtain the best possible picture.</li></ul>
<b>Picture is fuzzy</b>	<ul style="list-style-type: none"><li>• Adjust the brightness and contrast (page 9).</li><li>• Degauss the monitor* (page 11).</li><li>• Select MOIRE ADJUST and adjust the moire cancellation effect (page 11).</li></ul>



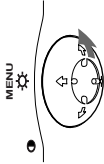
Self-diagnosis function

This monitor is equipped with a self-diagnosis function. If there is a problem with your monitor or computer, the screen will go blank and the (power) indicator will either light up green or flash orange. If the (power) indicator is lit in orange, the computer is in power saving mode. Try pressing any key on the keyboard.



If the (power) indicator is green

- 1 Disconnect the video input cable or turn off the connected computer.
- 2 Press the (power) button twice to turn the monitor off and then on.
- 3 Move the control button for 2 seconds before the monitor enters power saving mode.



If all four color bars appear (white, red, green, blue), the monitor is working properly. Reconnect the video input cable and check the condition of your computer.

If the color bars do not appear, there is a potential monitor failure. Inform your authorized Sony dealer of the monitor's condition.

If the (power) indicator is flashing orange

Press the (power) button twice to turn the monitor off and then on.  
If the (power) indicator lights up green, the monitor is working properly.

If the (power) indicator is still flashing, there is a potential monitor failure. Count the number of seconds between orange flashes of the (power) indicator and inform your authorized Sony dealer of the monitor's condition. Be sure to note the model name and serial number of your monitor. Also note the make and model of your computer and video board.

Specifications

CRT	0.24 mm aperture grille pitch (center) 17 inches measured diagonally 90-degree deflection FD Trinitron
Viewable image size	Approx. 327 × 243 mm (w/h) (14 3/4 × 9 5/8 inches) 16.0" viewing image
Resolution Maximum	Horizontal: 1600 dots Vertical: 1200 lines
Recommended	Horizontal: 1024 dots Vertical: 768 lines
Standard image area	Approx. 312 × 234 mm (w/h) (12 3/8 × 9 1/4 inches)
Deflection frequency*	Horizontal: 30 to 85 kHz Vertical: 48 to 120 Hz
AC input voltage/current	100 to 240 V, 50 – 60 Hz, Max. 1.7 A
Power consumption	120 W
Dimensions	Approx. 404 × 413.5 × 419.5 mm (w/h/d) (16 × 16 3/8 × 16 5/8 inches)
Mass	Approx. 20 kg (44 lb 1 oz)
Plug and Play	DDC1/DDC2B/DDC2Bi
Supplied accessories	See page 6

\* Recommended horizontal and vertical timing condition

- Horizontal sync width should be more than 1.0 μsec.
- Horizontal blanking width should be more than 3.0 μsec.
- Vertical blanking width should be more than 500 μsec.

Design and specifications are subject to change without notice.

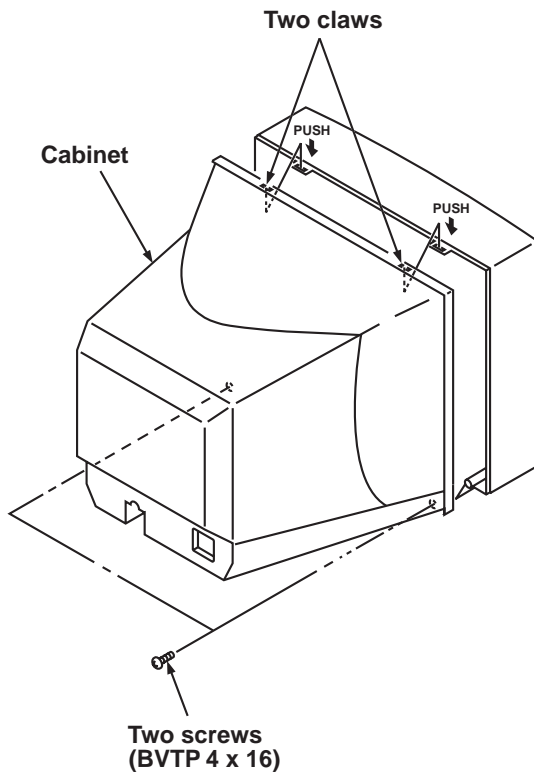
**NOTES:**

[illegible]

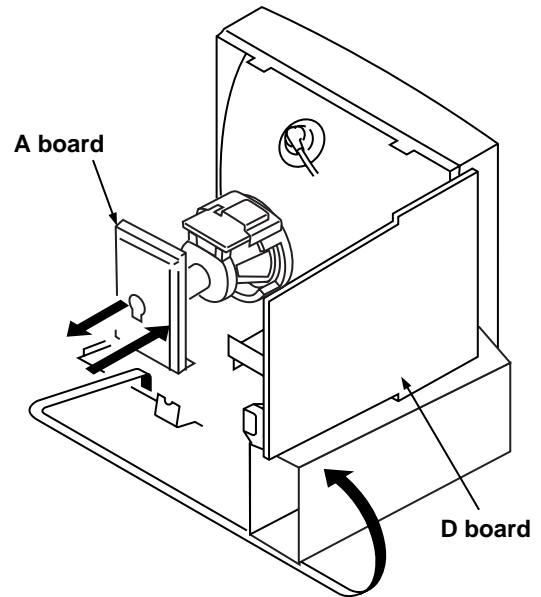


## SECTION 2 DISASSEMBLY

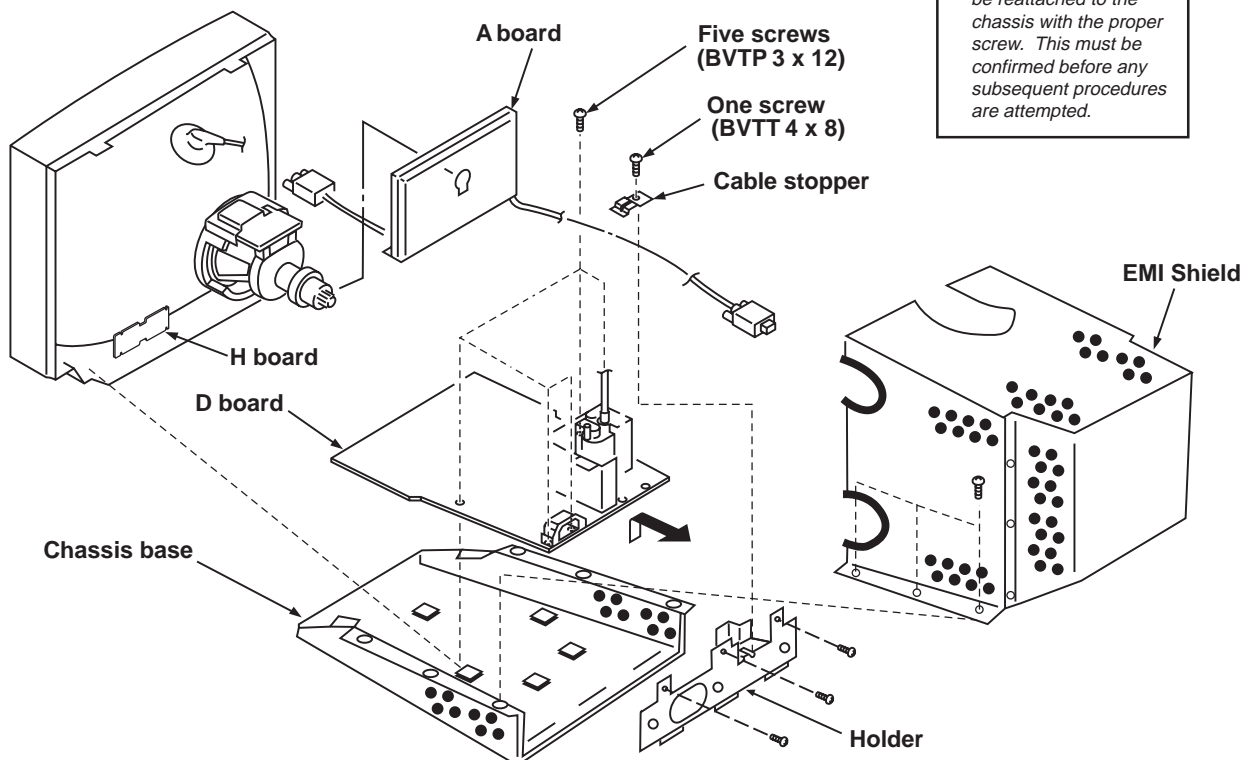
### 2-1. CABINET REMOVAL



### 2-2. SERVICE POSITION



### 2-3. A, D and H BOARD REMOVAL

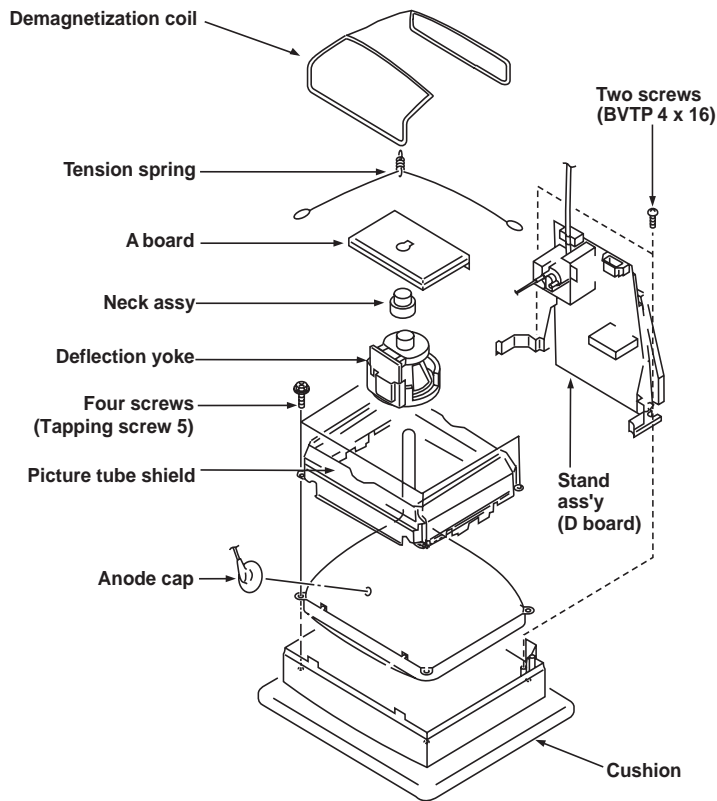
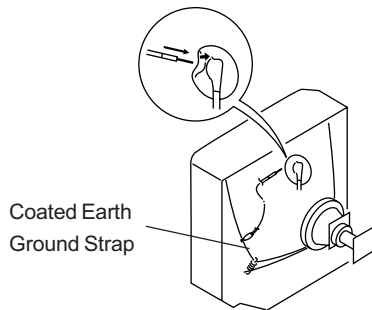


- 1 When the D-board is placed in service position, the Safety Earth Wire (green and yellow wire) is disconnected.
- 2 After service is completed and the D-board reinstalled, the Safety Earth Wire must be reattached to the chassis with the proper screw. This must be confirmed before any subsequent procedures are attempted.

## 2-4. PICTURE TUBE REMOVAL

### WARNING: BEFORE REMOVING THE ANODE CAP

High voltage remains in the CRT even after the power is disconnected. To avoid electric shock, discharge CRT **before** attempting to remove the anode cap. Short between anode and CRT coated earth ground strap.

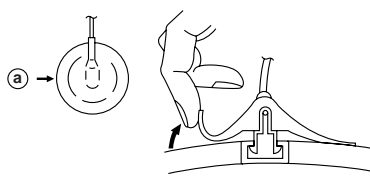


## ANODE CAP REMOVAL

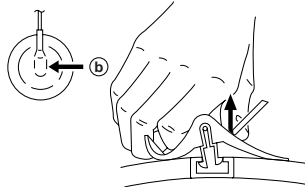
**WARNING:** High voltage remains in the CRT even after the power is disconnected. To avoid electric shock, discharge CRT **before** attempting to remove the anode cap. Short between anode and CRT coated earth ground strap.

**NOTE:** After removing the anode, short circuit the anode of the picture tube and the anode cap to either the metal chassis, CRT shield, or carbon painted on the CRT.

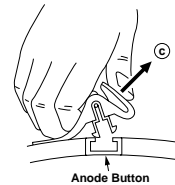
### REMOVAL PROCEDURES



① Turn up one side of the rubber cap in the direction indicated by arrow (a).



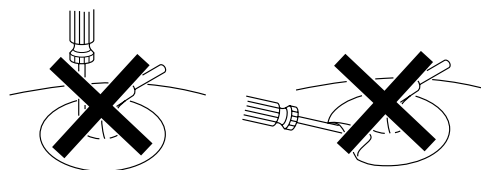
② Use your thumb to pull the rubber cap firmly in the direction indicated by arrow (b).



③ When one side of the rubber cap separates from the anode button, the anode cap can be removed by turning the rubber cap and pulling it in the direction of arrow (c).

### HOW TO HANDLE AN ANODE-CAP


- ① Do not use sharp objects which may cause damage to the surface of the anode cap.
- ② Do not squeeze the rubber covering too hard to avoid damaging the anode cap. A material fitting called a shatter-hook terminal is built into the rubber.
- ③ Do not force turn the foot of the rubber cover. This may cause the shatter-hook terminal to protrude and damage the rubber.




## SECTION 3

### SAFETY RELATED ADJUSTMENTS

When replacing parts shown in the table below, the following operational checks must be performed as a safety precaution against X-ray emissions from the unit.

	Part Replaced (  )
HV ADJ	RV501


	Part Replaced (  )
HV Regulator Circuit	D board T501, IC501, RV501, R541, R542, R544, R564, R567, R568, C532, C534, C539, C553, C554, C555, C556, C558, C561
HV HOLD DOWN Circuit	D board T501, R510, R543, R547, R549, R552, R595, D515, D517, C540, C542, C544, IC607, IC901
Beam Current Protector Circuit	D board T501, R545, R546, R548, R550, R596, R934, C535, C541, IC605, IC607, IC901

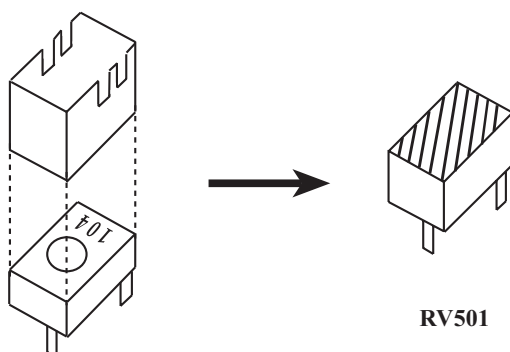
※ Allow the unit to warm up for one minute prior to checking the following conditions:

#### a) HV Regulator Check

- 1) Input white cross hatch signal. (fH = 69 kHz)
- 2) CONT maximum and BRT center
- 3) Cut off Screen VR (G2).
- 4) Input voltage:  $120 \pm 2$  VAC
- 5) Confirm that the voltage is within the voltage range shown below.

Standard voltage:  $26.9 \text{ KV} \pm 0.4 \text{ KV}$

- 6) When replacing components identified by  , make sure to recheck the High Voltage.
- 7) Verify the High Voltage as shown above ( $26.9 \text{ KV} \pm 0.4 \text{ KV}$ ) is within specification. If not, set H. SIZE data at minimum (-127) and then adjust RV501 on "D" Board.



- 8) After adjusting the High Voltage within specification, put the RV cover on RV501 as shown below and apply sufficient amount of RTV around RV501.

#### b) HV Protector Circuit Check

- 1) Confirm that the voltage between cathode of D517 and GND is more than 27.5 VDC.
- 2) Using an external DC Power supply, apply the voltage shown below between cathode of D517 on "D" and GND, and confirm that the HV Hold-Down circuit works. (Raster disappears) Apply DC Voltage: Less than 35.8 VDC.

##### Check Condition

- Input voltage :  $120 \pm 2$  VAC
- Input signal : (fH = 69 kHz), White Cross Hatch
- Controls : CONT (max) & BRT (center)
- B+ Voltage :  $179 \pm 3.0$  VDC

#### c) Beam Protector Check (Software logic)

- 1) Using an external current source, apply  $< 1.55 \text{ mA}$  between pin ⑪ of FBT (T501) and GND, and confirm that the raster fades out.

##### Check Condition

- Input voltage :  $120 \pm 2$  VAC
- Input signal : (fH = 69 kHz), White Cross Hatch
- Controls : CONT (max) & BRT (min)

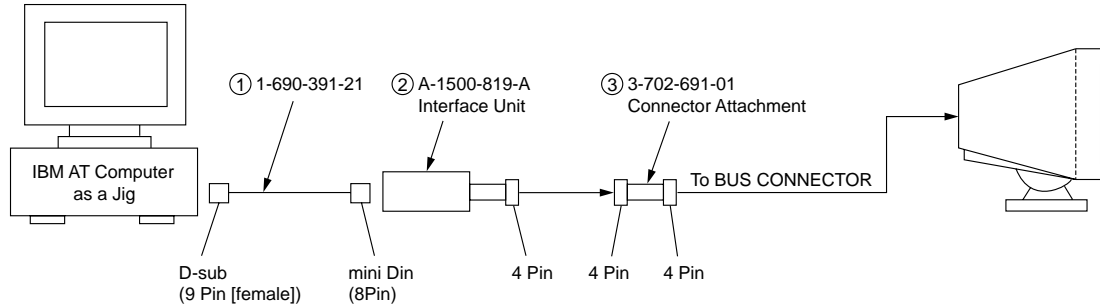
#### d) B+ Voltage Check

- 1) Input white cross hatch (fH = 69 kHz) signal.
- 2) CONT (max) & BRT (center)
- 3) Input voltage:  $120 \pm 2$  VAC  
**Note:** Use NF power supply or make sure that distortion factor is 3% or less.
- 4) Confirm that the voltage is within the voltage range shown below.

Standard voltage:  $179 \pm 3.0$  VDC

## SECTION 4 ADJUSTMENTS

Connect the communication cable of the connector located on the D board on the monitor. Run the service software and then follow the instructions.



\*The parts above (①)~(③) are necessary for DAS adjustment.

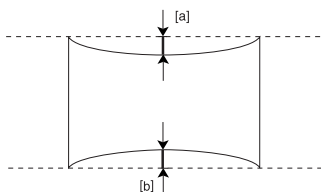
※ Allow a 30 minute warm-up period prior to making the following adjustments:

### 4-1. Landing Rough Adjustment

1. Display the all white pattern.
2. Adjust the contrast to maximum value.
3. Display the plain green pattern.
4. Slide the DY back and roughly adjust the plain green pattern with the purity magnet so that it is centered on the screen.
5. Moving the DY forward, adjust so that an entire screen becomes pure green.
6. Adjust the tilt of DY and tighten lightly with a clamp.

### 4-2. Landing Fine Adjustment

1. Place the monitor in the Helmholtz coil.
2. Set TLH plate to zero position.
3. Display plain green pattern.
4. Degauss CRT face and iron parts with degauss equipment or hand-degausser.
5. Perform auto degauss.
6. Attach a wobbling coil to the specified position of CRT neck.
7. Put the sensor of landing checker to CRT face.
8. Adjust purity, DY position and DY tilt.
9. Tighten DY screw.
10. Perform auto degauss.
11. Adjust top and bottom pin by pitching DY up and down with two wedges so that [a] is equal to [b].

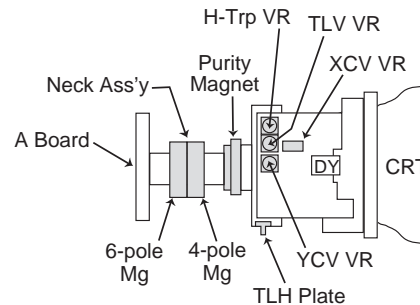


12. If the corner landing is out of specification, use a disk magnet for the landing correction.
13. If disk magnets were used, perform an auto degauss.
14. Remove the wobbling coil and sensor.
15. Fix the purity magnet on DY with white paint.

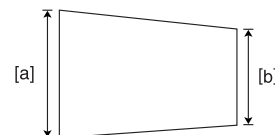
### 4-3. Convergence Rough Adjustment

1. Enter the white crosshatch signal.
2. Roughly adjust the horizontal (H.STAT) and vertical (V.STAT) convergence at four-pole magnet.
3. Roughly adjust HMC and VMC at six-pole magnet.

### 4-4. Convergence and V. Key (H. Trp) Fine Adjustment



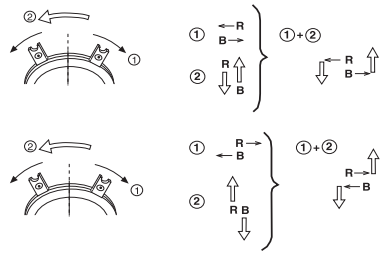
1. Display crosshatch pattern with green lines and black field.
2. Adjust V. Key (=H. Trapezoid) with H-Trp VR so that [a] is equal to [b].



3. Change "CONV\_OFF\_NDX" to "7".

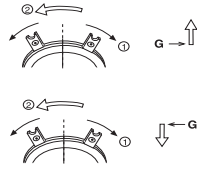
4. Display crosshatch pattern with red and blue lines and black field.
5. Adjust H.STAT and V.STAT with 4 pole magnet. Use 4 pole magnet, not "HSTAT" and "VSTAT".

**4 Pole Magnet**



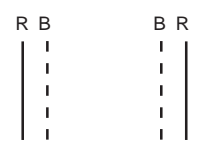
6. Display crosshatch pattern with white lines and black field.
7. Adjust HMC and VMC with 6 pole magnet.

**6 Pole Magnet**



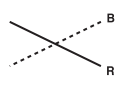
8. Display crosshatch pattern with red and blue lines and black field.
9. If necessary, repeat steps 5-8.
10. Change "CONV\_OFF\_NDX" to "3".
11. Adjust H.TILT with TLH plate.

**TLH movement**



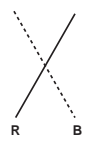
12. Adjust XCV with XCV VR.

**XCV movement**



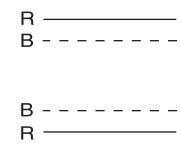
13. Adjust YCH with YCH VR.

**YCH movement**



14. Adjust V.TILT with TLV VR.

**TLV movement**

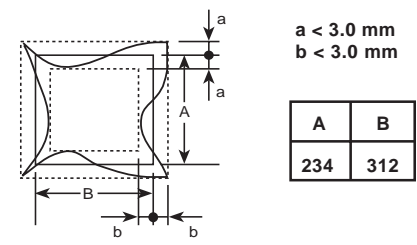


15. If necessary, repeat steps 3-14 to make the optimum condition for the entire screen.
16. Fix 4-pole magnet, 6-pole magnet and XCV VR with white paint

**Zero Position NECK Ass'y**

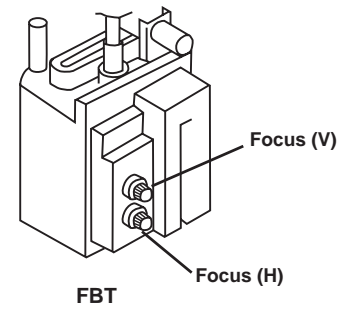


**4-5. Vertical and Horizontal Position and Size Specification**



**4-6. Focus adjustment**

Adjust focus (V) and focus (H) for optimum focus.

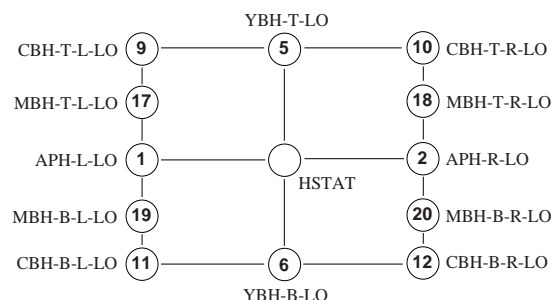


## 4-7. Digital Convergence Adjustment

### Convergence (Low) Mode

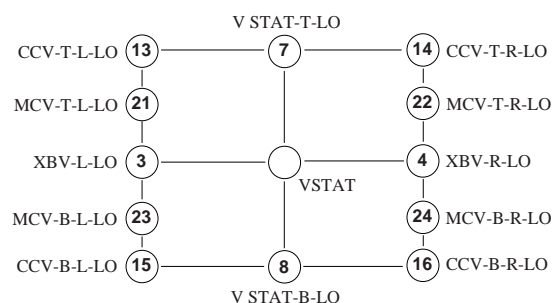
1. Adjust the H.STAT and V.STAT with "HSTAT" and "VSTAT".

#### A. Horizontal Convergence



Adjust each misconvergence point in sequence.

#### B. Vertical Convergence



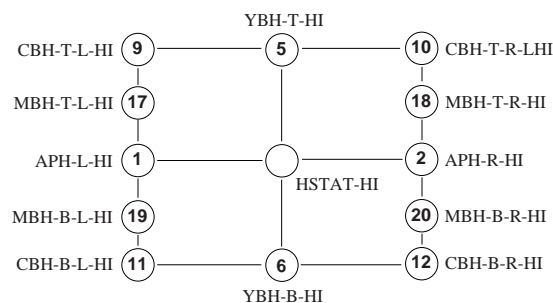
Adjust each misconvergence point in sequence.

2. Repeat the procedure of A and B so that the convergence of the entire screen is within the specification.

### Convergence (High) Mode

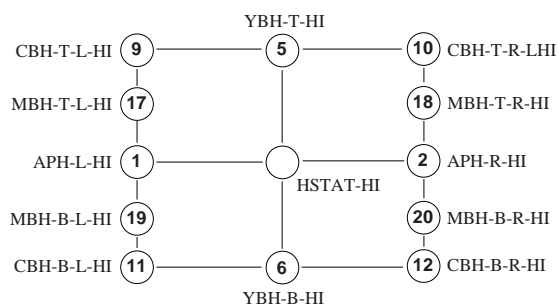
1. Adjust the H.STAT and V.STAT with "HSTAT-HI" and "VSTAT-HI".

#### Horizontal Convergence



Adjust each misconvergence point in sequence.

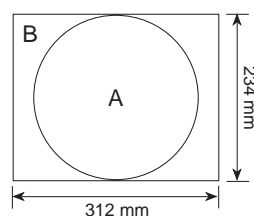
### Vertical Convergence



Adjust each misconvergence point in sequence.

2. Repeat the procedure of A and B so that the convergence of the entire screen is within the specification.

## 4-8. Convergence Specification



#### A Zone:

H:  $\leq 0.2\text{mm}$  or less  
V:  $\leq 0.2\text{mm}$  or less

#### B Zone:

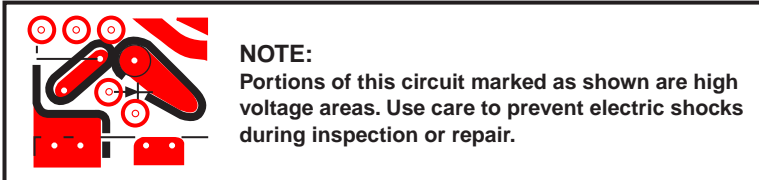
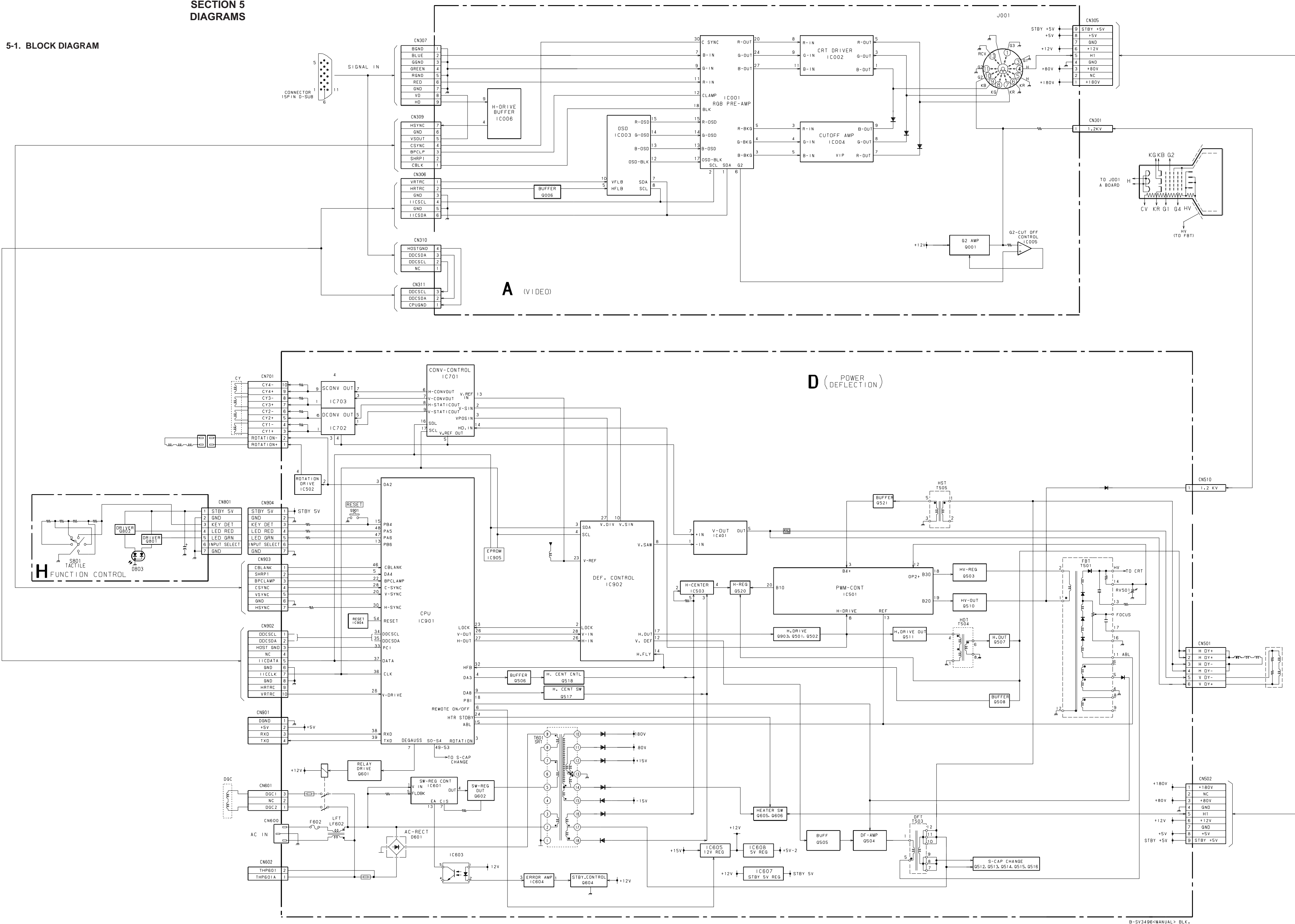
H:  $\leq 0.24\text{mm}$  or less  
V:  $\leq 0.24\text{mm}$  or less



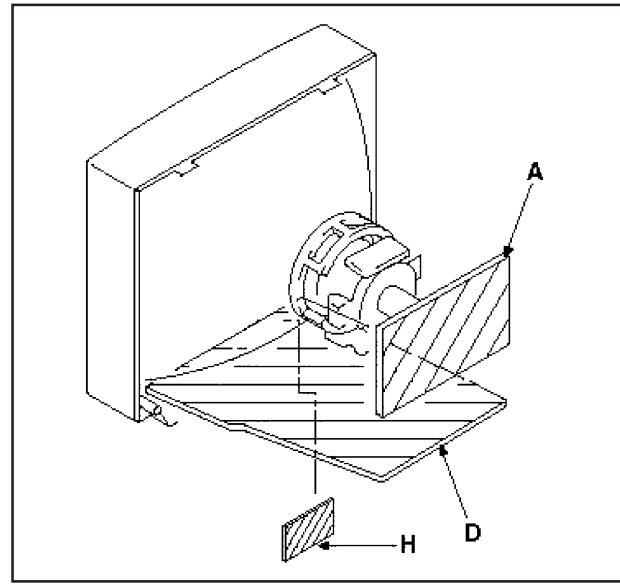
CPD-E200

## SECTION 5 DIAGRAMS

### 5-1. BLOCK DIAGRAM



### 5-2. CIRCUIT BOARDS LOCATION



### 5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

- Note:**
- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF}$ :  $\mu\text{pF}$
  - 50 WV or less are not indicated except for electrolytic.
  - Indication of resistance, which does not have one for rating electrical power, is as follows.
- Pitch: 5 mm  
Rating electrical power 1/4 W (CHIP: 1/10 W)
- All resistors are in ohms.
  - $\square$ : nonflammable resistor.
  - $\square$ : fusible resistor.
  - $\Delta$ : internal component.
  - $\square$ : panel designation and adjustment for repair.
  - All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
  - $\perp$ : earth-ground.
  - $\#$ : earth-chassis.
  - The components identified by  $\mathbf{H}$  in this basic schematic diagram have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.
  - When replacing components identified by  $\mathbf{H}$ , make the necessary adjustments by using RV904 ( $\mathbf{H}$ ) as indicated. (See page 15)

**Note: The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.**

**Note: Les composants identifiés par un trame et une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.**

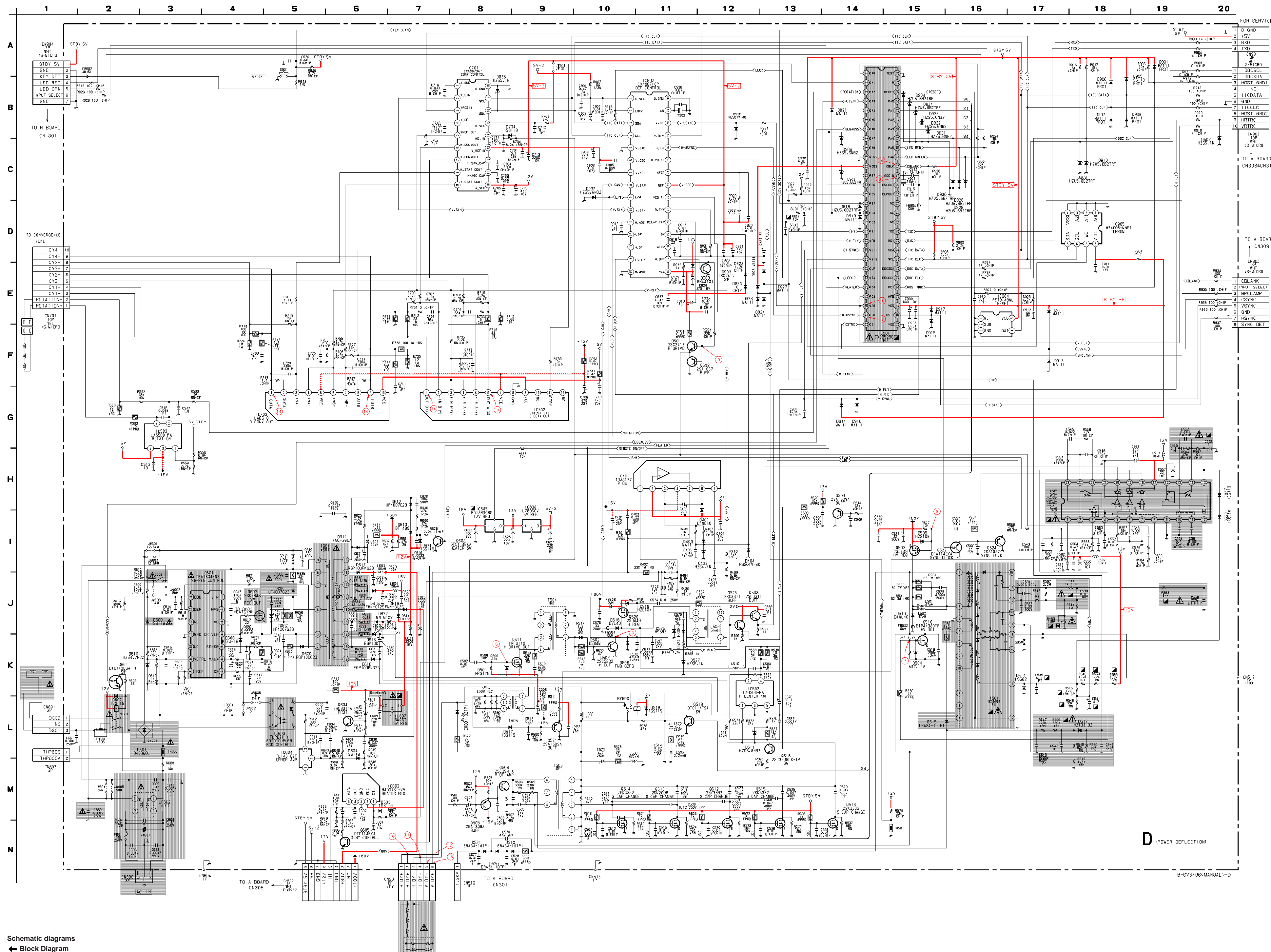
- When replacing parts shown in the table below, be sure to perform the safety related adjustment.

	Part Replaced ( $\mathbf{H}$ )
HV ADJ	RV501
HV Regulator Circuit	D board T501, IC501, RV501, R541, R542, R544, R564, R567, R568, C532, C534, C539, C553, C554, C555, C556, C558, C561
HV HOLD DOWN Circuit	D board T501, R510, R543, R547, R549, R552, R595, D515, D517, C540, C542, C544, IC607, IC901
Beam Current Protector Circuit	D board T501, R545, R546, R548, R550, R596, R934, C535, C541, IC605, IC607, IC901

- All voltages are in volts.
- Readings are taken with a 10 M $\Omega$  digital multimeter
- Readings are taken with a color-bar signal input.
- Voltage variations may be noted due to normal production tolerances.
- $*$ : Cannot be measured.
- Circled numbers are waveform references.
- $\text{---}$ : B +bus.
- $\text{---}$ : B -bus.



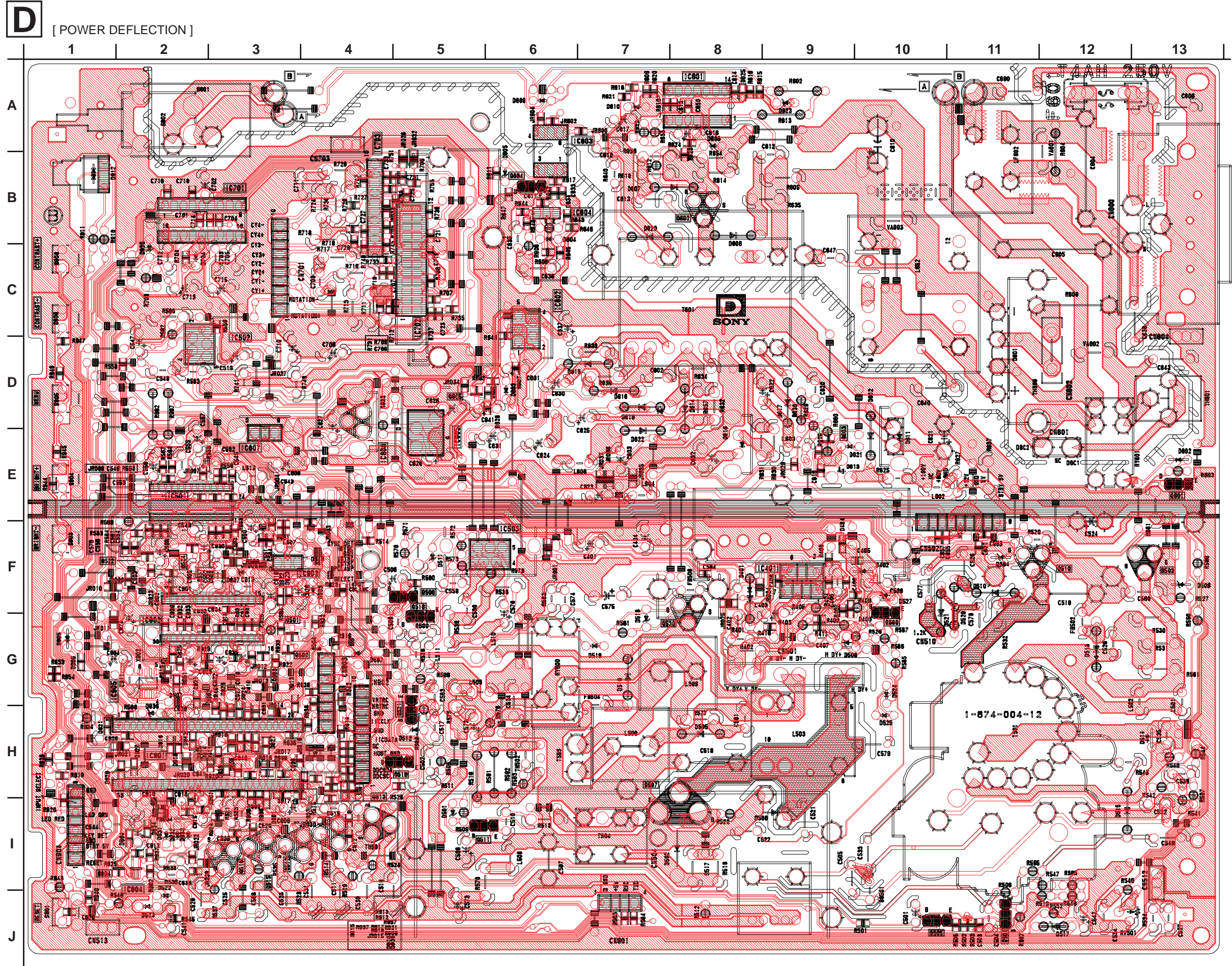
## D BOARD SCHEMATIC DIAGRAM







CPD-E200



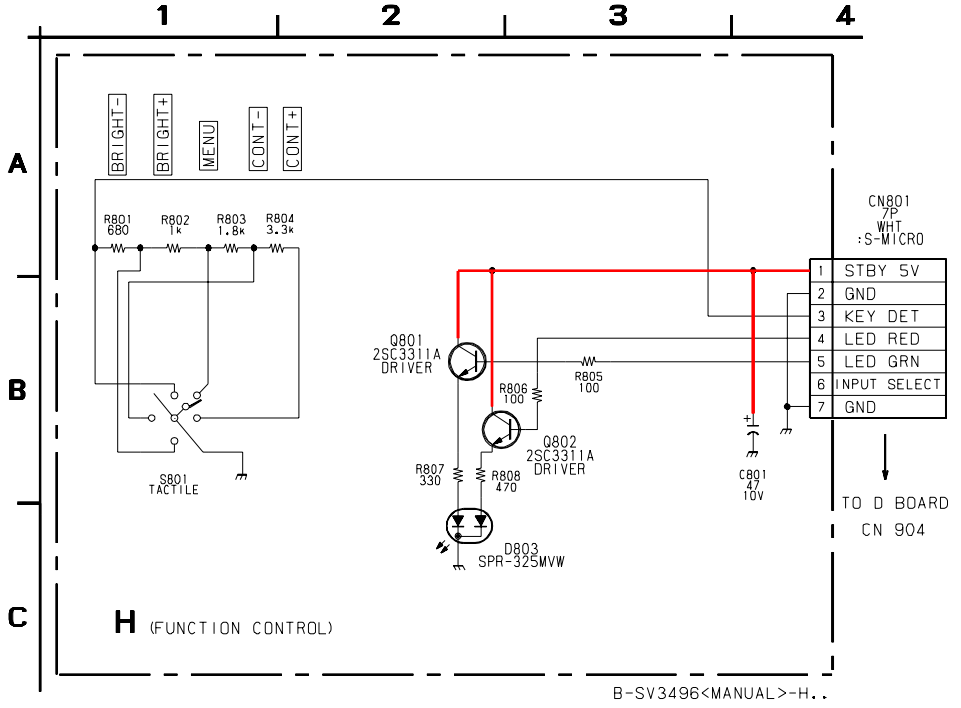
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**D BOARD LOCATOR LIST**

DIODE		D517	J-12	D610	A-7	D906	G-1	D926	H-3	IC602	C-6	Q507	I-8
D401	F-9	D618	G-7	D611	E-10	D907	G-3	D927	H-3 <th>IC603</th> <th>A-7</th> <th>Q508</th> <th>G-10</th>	IC603	A-7	Q508	G-10
D402	F-10	D619	G-7	D612	E-10	D908	H-3	D928	H-2 <th>IC604</th> <th>B-7</th> <th>Q510</th> <th>F-11</th>	IC604	B-7	Q510	F-11
D403	F-10	D620	G-11	D613	E-9	D909	J-4	D929	H-2 <th>IC605</th> <th>E-5</th> <th>Q511</th> <td>I-6</td>	IC605	E-5	Q511	I-6
D404	F-10	D621	G-11	D614	D-8	D910	J-4	D930	H-3 <th>IC607</th> <td>E-3<th>Q512</th><td>I-3</td></td>	IC607	E-3 <th>Q512</th> <td>I-3</td>	Q512	I-3
D501	I-5	D622	J-2	D615	D-7	D911	H-3	D931	I-2 <th>IC608</th> <td>E-5<th>Q513</th><td>I-3</td></td>	IC608	E-5 <th>Q513</th> <td>I-3</td>	Q513	I-3
D502	I-8	D623	J-2	D616	D-7	D913	F-4	D932	I-2 <th>IC701</th> <td>B-3<th>Q514</th><td>I-3</td></td>	IC701	B-3 <th>Q514</th> <td>I-3</td>	Q514	I-3
D504	F-11	D624	H-10	D617	D-9	D914	H-3	D933	I-2 <th>IC702</th> <td>C-5<th>Q515</th><td>I-3</td></td>	IC702	C-5 <th>Q515</th> <td>I-3</td>	Q515	I-3
D505	H-8	D625	H-10	D618	E-8	D915	J-4	D934	I-2 <th>IC703</th> <td>B-4<th>Q516</th><td>I-3</td></td>	IC703	B-4 <th>Q516</th> <td>I-3</td>	Q516	I-3
D506	I-9	D627	F-10	D619	D-7	D916	H-3	D935	E-2 <th>IC801</th> <td>H-3<th>Q518</th><td>G-5</td></td>	IC801	H-3 <th>Q518</th> <td>G-5</td>	Q518	G-5
D507	G-4	D601	D-11	D620	B-7	D917	H-5	D936	H-3 <th>IC802</th> <td>G-3<th>Q519</th><td>H-5</td></td>	IC802	G-3 <th>Q519</th> <td>H-5</td>	Q519	H-5
D509	F-13	D602	E-13	D621	E-10	D918	H-3	D937	F-3 <th>IC904</th> <td>I-1<th>Q520</th><td>G-8</td></td>	IC904	I-1 <th>Q520</th> <td>G-8</td>	Q520	G-8
D510	F-11	D603	D-6	D622	E-7	D919	H-3	D938	H-3 <th>IC905</th> <td>G-2</td> <th>Q521</th> <td>H-5</td>	IC905	G-2	Q521	H-5
D611	F-5	D604	B-6	D704	C-3	D920	G-2	IC		TRANSISTOR			
D612	H-5	D605	A-6	D901	I-3	D921	H-2	IC401	F-9	Q901	G-4	Q524	F-2
D613	G-12	D606	B-8	D902	H-3	D922	F-4	IC501	E-2	Q902	G-4	Q901	E-13
D614	H-13	D607	B-8	D903	F-4	D923	F-4	IC502	D-3	Q903	F-13	Q602	B-8
D615	H-13	D608	B-8	D904	I-2	D924	G-3	IC503	F-6	Q904	J-11	Q603	E-9
D616	G-7	D609	A-7	D905	G-1	D925	H-3	IC601	A-8			Q604	B-6
										Q906	F-5	Q605	D-5
												Q903	G-3

**H BOARD SCHEMATIC DIAGRAM**

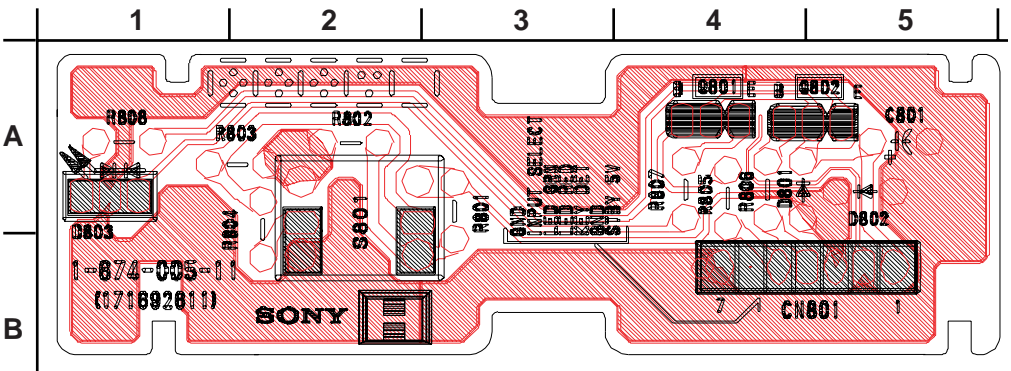


**H BOARD TRANSISTOR VOLTAGE LIST**

	B	C	E
Q901	4.55	5.07	4.0
Q902	4.87	5.07	4.2

All voltages are in V

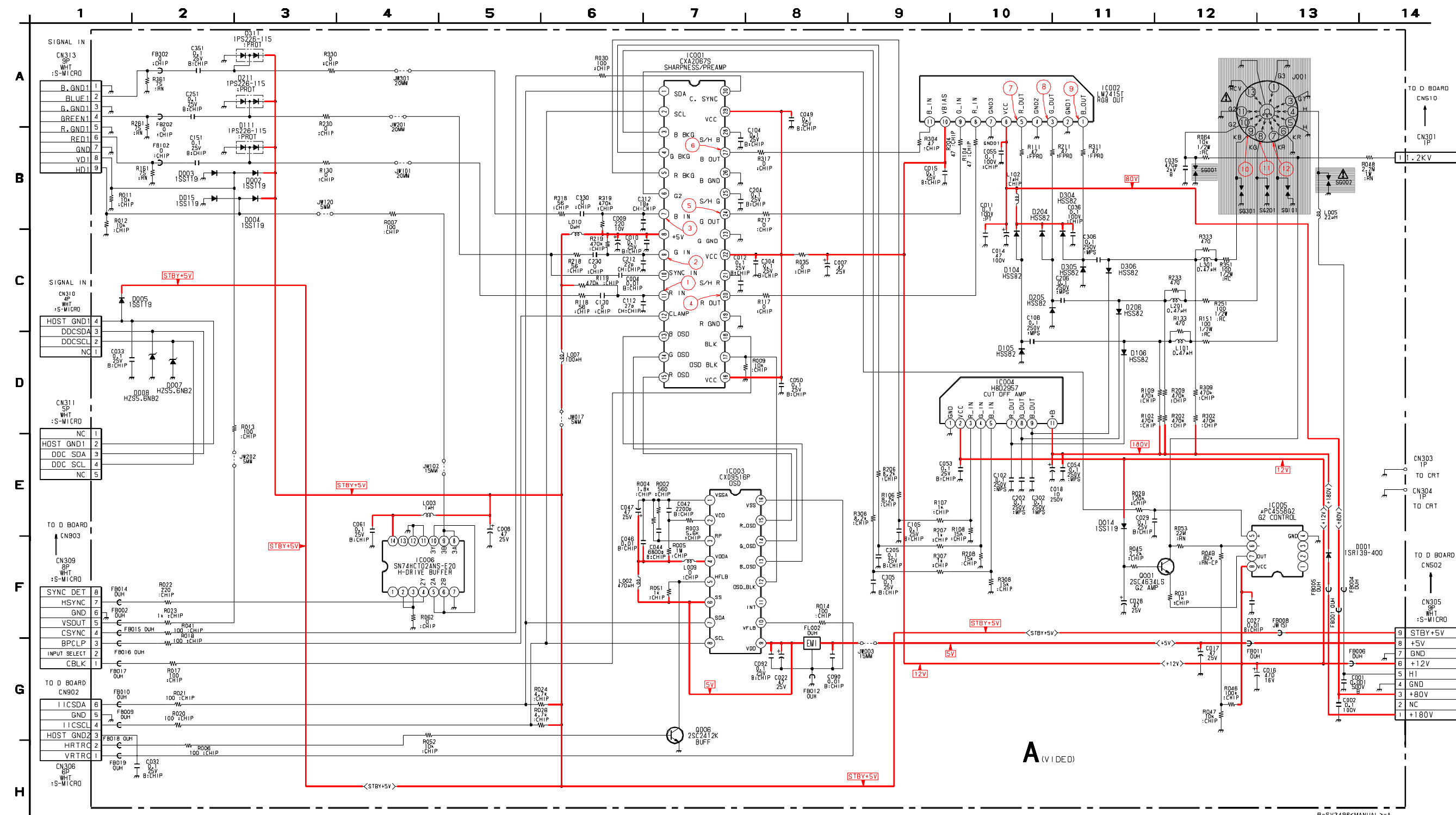
**H** [FUNCTION CONTROL]



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A BOARD SCHEMATIC DIAGRAM



**A BOARD TRANSISTOR VOLTAGE LIST**

	B	C	E
Q001	114	441.0	10.9
Q006	-0.2	3.8	GND

All voltages are in V

A BOARD IC VOLTAGE LIST

IC001				IC002				IC004				IC005				IC006			
pin	volt	pin	volt	pin	volt	pin	volt	pin	volt	pin	volt	pin	volt	pin	volt	pin	volt	pin	volt
1	4.2	12	0.1	22	11.8	1	177.7	1	GND	1	118	1	118	1	118	1	118	1	118
2	4.6	13	0	24	19	2	GND	2	GND	2	118	2	0.7	2	0	2	0	2	0
3	2.4	14	0	25	3.5	3	57.5	3	pin	3	118	3	1.1	3	0	3	0	3	0
4	2.8	15	0	26	GND	4	GND	4	1	4	118	4	0.7	4	0	4	0	4	0
5	2.5	16	11.8	27	2.0	5	54.2	5	2	5	118	5	1.1	5	0	5	0	5	0
6	2.8	17	0	28	3.5	6	80.5	6	NC	6	118	6	0.7	6	0	6	0	6	0
7	2.0	18	10	29	11.8	7	GND	7	NC	7	118	7	0.7	7	0	7	0	7	0
8	4.8	19	GND	30	2.6	8	21	8	15	8	118	8	0.7	8	0	8	0	8	0
9	2.0	20	2.0			9	3.8	9	15	9	118	9	0.7	9	0	9	0	9	0

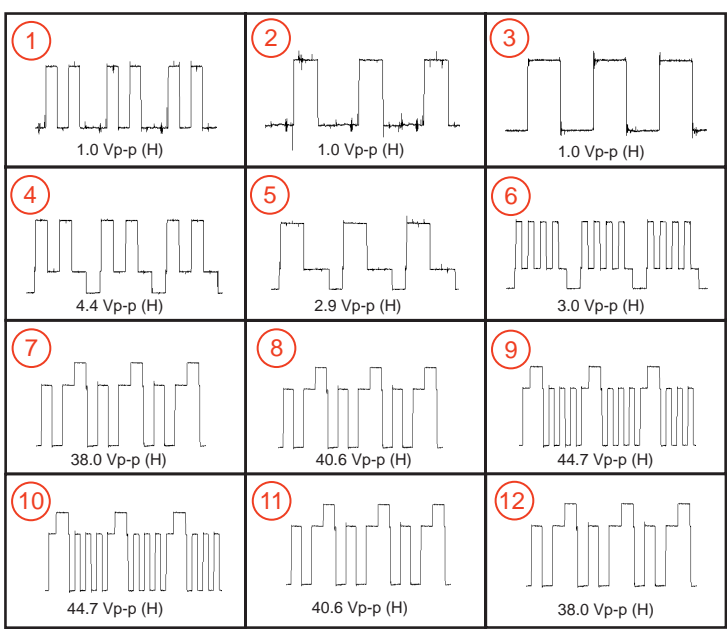
All voltages in V

Schematic diagrams  
◀ [D] [H] boards  
[A] board →

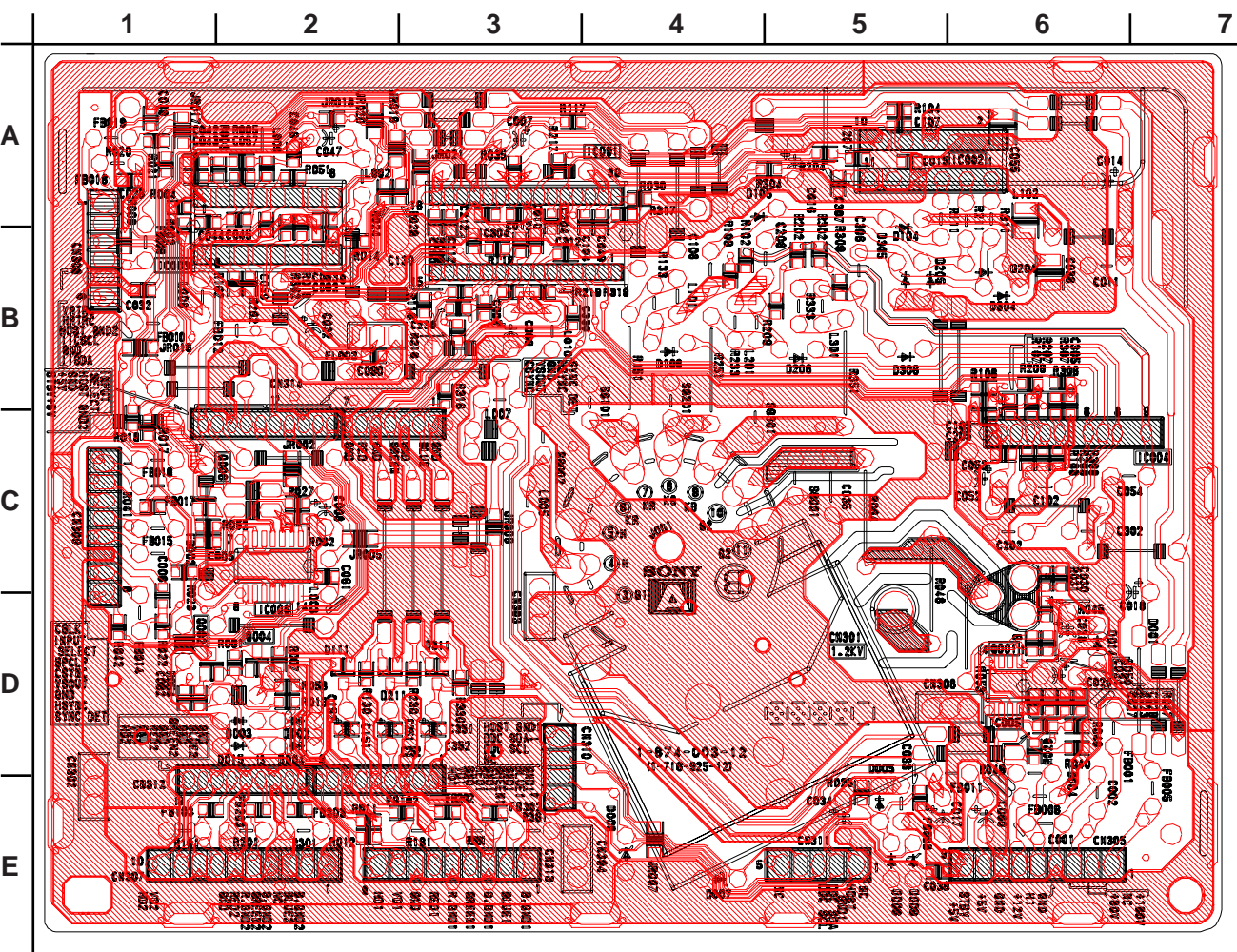
A BOARD LOCATOR LIST

DIODE		D105		B-5		IC	
D001	D-7	D106	B-4	IC001	A-3		
D002	D-2	D111	D-2	IC002	A-5		
D003	D-2	D204	B-6	IC003	B-2		
D004	D-2	D205	B-5	IC004	C-6		
D005	E-5	D206	B-5	IC005	D-6		
D007	E-4	D211	D-3	IC006	D-2		
D008	E-4	D304	B-6				
D014	D-6	D305	B-6	Q001	D-6		
D015	D-2	D306	B-6	Q006	C-2		
D104	B-5	D311	D-3				

A BOARD WAVEFORMS

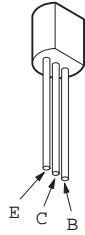


A [VIDEO]

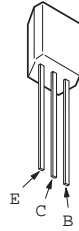


## 5-4. SEMICONDUCTORS

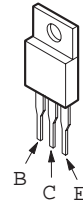
2SC2610



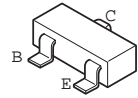
DTC143ESA



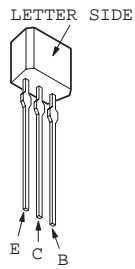
2SC4634LS-CB11



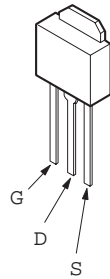
2SC1623-L5L6  
2SA1037AK-T146-R  
2SC3941A-Q(TA)  
DTA114EKA-T146



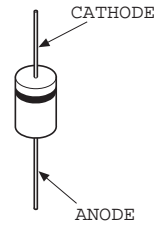
2SA1175-HFE  
2SC2785-HFE  
DTC114TSA  
2SC3311A-QRSTA



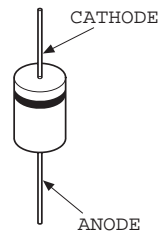
2SK2605LBSONY  
2SK3155-01  
2SK2098-01MR-F119  
2SK2843LBS2SONY  
IRFU110A



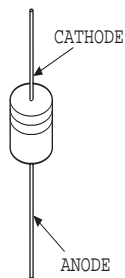
MTZJ-T-77-12B  
ERC81-004  
EGP10D  
RGP10JPKG23  
RGP10DG23  
RL3Z-LF014-302



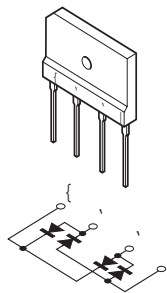
HZU5.6B2TRF  
D1NS6  
D1NL40-TA2  
UF4007G23  
RGP02-20EL-6394  
ERB91-02



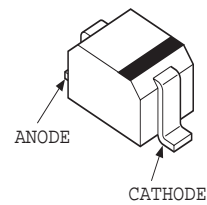
1SS119-25  
RD5.1ESB2  
RD5.6ESB2  
RD18ESB2  
RD10ESB2  
MTZJ-4.7C  
MTZJ-T-77-18  
RB441Q-40T-77



D4SB60L



HSS83TD  
1SS355TE-17  
HSS82



## SECTION 6 EXPLODED VIEWS

• Items with no part number and no description are not stocked because they are seldom required for routine service.

• The component parts of an assembly are indicated by the reference numbers in the remarks column.

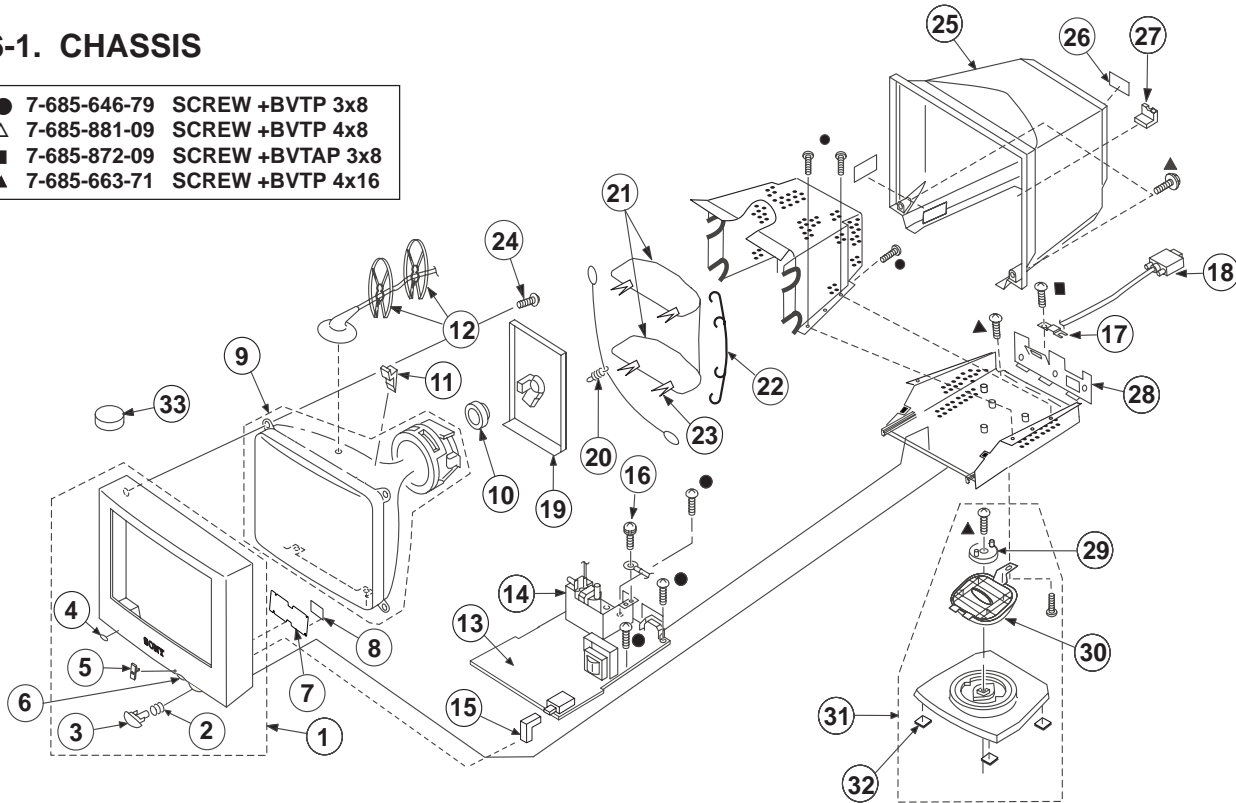
• Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

### Note:

**The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.**

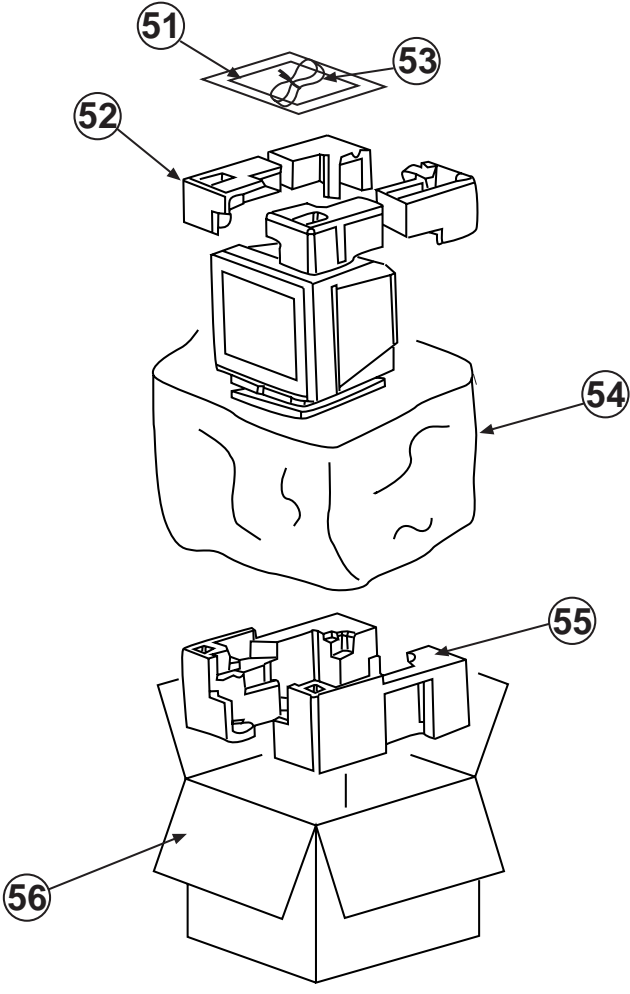
### 6-1. CHASSIS

- 7-685-646-79 SCREW +BVTP 3x8
- △ 7-685-881-09 SCREW +BVTP 4x8
- 7-685-872-09 SCREW +BVTAP 3x8
- ▲ 7-685-663-71 SCREW +BVTP 4x16



REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
1	X-4036-851-1	BEZEL ASSY	2-5	19	* A-1294-733-A	A BOARD, COMPLETE	
2	3-653-339-21	SPRING, COMPRESSION		20	* 4-061-573-01	SPRING, TENSION	
3	4-071-152-01	BUTTON, POWER		21	▲ 1-419-092-11	COIL, DEGAUSSING	
4	* 4-071-154-01	BUTTON, RESET		22	4-371-521-01	BAND (L), DEGAUSSING COIL	
5	4-071-153-01	GUIDE, LIGHT		23	4-045-123-01	HOLDER, DEGAUSSING COIL	
6	4-071-155-01	BUTTON, MENU		24	4-365-808-01	SCREW (5), TAPPING	
7	* A-1372-633-A	H BOARD, MOUNTED		25	* 4-071-147-01	CABINET	
8	* 4-071-145-01	BRACKET, H		26	* 4-071-143-01	LABEL, INFORMATION	
9	▲ 8-738-550-61	ITC ASSY, 17TKB-R1		27	* 4-071-156-01	COVER, CABLE	
10	▲ 1-452-923-41	NECK ASSY (NA-2915)		28	* 4-071-057-01	HOLDER, CABLE	
11	4-040-897-01	SPACER, DY		29	4-071-150-01	STOPPER, A	
12	3-704-372-31	HOLDER, HV CABLE		30	4-071-149-01	SLIDER	
13	* A-1346-853-A	D BOARD, COMPLETE		31	X-4036-850-1	BASE ASSY, STAND	29, 30, 32
14	▲ 1-453-311-11	TRANSFORMER ASSY, FLYBACK (NX-4404//X4L4)		32	4-060-533-01	CUSHION	
15	4-071-146-01	CAP, POWER		33	1-452-032-00	MAGNET, DISC	
16	7-685-648-79	SCREW +BVTP 3x12 TYPE IT-3					
17	* 4-045-131-01	STOPPER, CABLE					
18	* 1-790-038-21	CABLE ASSY (15P D-SUB)					

6-2. PACKING MATERIALS



REF.NO.	PART NO.	DESCRIPTION	REMARK
51	* 3-867-254-11	MANUAL, INSTRUCTION	
52	* 4-070-972-01	CUSHION (UPPER) (ASSY)	
53 △	1-790-568-11	CORD, POWER	
54	* 4-041-927-11	BAG, POLYETHYLENE	
55	* 4-070-969-01	CUSHION (LOWER) (ASSY)	
56	* 4-070-977-01	INDIVIDUAL CARTON	

**NOTES:**

[illegible]



## SECTION 7

### ELECTRICAL PARTS LIST

**Note:**

The components identified by shading and mark **△** are critical for safety. Replace only with part number specified.

**Note:**

Les composants identifiés par un trame et une marque **△** sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

The components identified by **△** in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

- Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

**RESISTORS**

- All resistors are in ohms
- F : nonflammable

**CAPACITORS**

- MF =  $\mu$ F


**INDUCTORS**


- UH =  $\mu$ H, MMH = mH


When indicating parts by reference number, please include the board name.

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
<div style="border: 2px solid black; padding: 5px; display: inline-block; font-size: 2em; font-weight: bold; margin-right: 10px;">A</div> <b>A-1294-733-A A BOARD, COMPLETE</b>				C053	1-164-004-11	CERAMIC CHIP	0.1MF 10% 25V
				C054	1-137-528-11	FILM	0.1MF 10% 250V
				C055	1-104-503-12	CERAMIC CHIP	0.1MF 10% 100V
				C061	1-164-004-11	CERAMIC CHIP	0.1MF 10% 25V
				C090	1-163-021-91	CERAMIC CHIP	0.01MF 10% 50V
				C092	1-164-004-11	CERAMIC CHIP	0.1MF 10% 25V
				C102	1-137-528-11	FILM	0.1MF 10% 250V
				C104	1-164-004-11	CERAMIC CHIP	0.1MF 10% 25V
				C105	1-164-004-11	CERAMIC CHIP	0.1MF 10% 25V
				C106	1-137-528-11	FILM	0.1MF 10% 250V
				C112	1-163-237-11	CERAMIC CHIP	27PF 5% 50V
				C130	1-216-295-91	SHORT	
				C151	1-164-004-11	CERAMIC CHIP	0.1MF 10% 25V
				C202	1-137-528-11	FILM	0.1MF 10% 250V
				C204	1-164-004-11	CERAMIC CHIP	0.1MF 10% 25V
				C205	1-164-004-11	CERAMIC CHIP	0.1MF 10% 25V
				C206	1-137-528-11	FILM	0.1MF 10% 250V
				C212	1-163-235-11	CERAMIC CHIP	22PF 5% 50V
				C230	1-216-295-91	SHORT	
				C251	1-164-004-11	CERAMIC CHIP	0.1MF 10% 25V
				C302	1-137-528-11	FILM	0.1MF 10% 250V
				C304	1-164-004-11	CERAMIC CHIP	0.1MF 10% 25V
				C305	1-164-004-11	CERAMIC CHIP	0.1MF 10% 25V
				C306	1-137-528-11	FILM	0.1MF 10% 250V
				C312	1-163-233-11	CERAMIC CHIP	18PF 5% 50V
				C330	1-216-295-91	SHORT	
				C351	1-164-004-11	CERAMIC CHIP	0.1MF 10% 25V
				<b>CONNECTOR</b>			
				CN301	1-506-108-41	PIN, CONNECTOR (TERMINAL PIN)	
				CN303	1-695-915-11	TAB (CONTACT)	
				CN304	1-695-915-11	TAB (CONTACT)	
				CN305	*1-564-512-11	PLUG, CONNECTOR 9P	
				CN306	*1-564-509-11	PLUG, CONNECTOR 6P	
				CN309	*1-564-511-11	PLUG, CONNECTOR 8P	
				CN310	*1-779-944-21	PIN, CONNECTOR (PC BOARD) 4P	
				CN311	*1-564-508-11	PLUG, CONNECTOR 5P	
				CN313	*1-758-705-11	PLUG, CONNECTOR 9P	
C001	1-162-318-11	CERAMIC	0.001MF	10%	500V		
C002	1-106-220-00	MYLAR	0.1MF	10%	100V		
C004	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V		
C007	1-104-664-11	ELECT	47MF	20%	25V		
C008	1-104-664-11	ELECT	47MF	20%	25V		
C009	1-126-934-11	ELECT	220MF	20%	10V		
C010	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V		
C011	1-106-220-00	MYLAR	0.1MF	10%	100V		
C012	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V		
C014	1-107-932-11	ELECT	47MF	20%	100V		
C015	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V		
C016	1-128-528-11	ELECT	470MF	20%	16V		
C017	1-104-664-11	ELECT	47MF	20%	25V		
C018	1-107-961-91	ELECT	10MF	20%	250V		
C022	1-104-664-11	ELECT	47MF	20%	25V		
C027	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V		
C028	1-104-664-11	ELECT	47MF	20%	25V		
C029	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V		
C032	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V		
C033	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V		
C035	1-162-134-11	CERAMIC	470PF	10%	2KV		
C036	1-104-503-12	CERAMIC CHIP	0.1MF	10%	100V		
C042	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V		
C044	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V		
C046	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V		
C047	1-104-664-11	ELECT	47MF	20%	25V		
C049	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V		
C050	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V		



**Note:** The components identified by shading and mark  are critical for safety. Replace only with part number specified.

**Note:** Les composants identifiés par un trame et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
<b>DIODE</b>				<b>IC</b>			
D001	8-719-970-02	DIODE 1SR139-400T31		IC001	8-752-090-63	IC CXA2067S	
D002	8-719-911-19	DIODE 1SS119-25		IC002	8-759-593-11	IC LM2415	
D003	8-719-911-19	DIODE 1SS119-25		IC003	8-759-589-35	IC CXD9516P	
D004	8-719-911-19	DIODE 1SS119-25		IC004	8-749-016-27	IC H8D2957	
D005	8-719-911-19	DIODE 1SS119-25		IC005	8-759-100-96	IC UPC4558G2	
				IC006	8-759-269-07	IC SN74HCT02ANSR	
D007	8-719-109-89	DIODE RD5.6ESB2		<b>JACK</b>			
D008	8-719-109-89	DIODE RD5.6ESB2		J001 	1-251-598-11	SOCKET, CRT	
D014	8-719-911-19	DIODE 1SS119-25		<b>CHIP CONDUCTOR</b>			
D015	8-719-911-19	DIODE 1SS119-25		JR002	1-216-296-91	SHORT	
D104	8-719-970-83	DIODE HSS82		JR005	1-216-296-91	SHORT	
				JR006	1-216-296-91	SHORT	
D105	8-719-970-83	DIODE HSS82		JR007	1-216-296-91	SHORT	
D106	8-719-970-83	DIODE HSS82		JR016	1-216-296-91	SHORT	
D111	8-719-062-51	DIODE 1PS226-115					
D204	8-719-970-83	DIODE HSS82		JR017	1-216-296-91	SHORT	
D205	8-719-970-83	DIODE HSS82		JR018	1-216-295-91	SHORT	
D206	8-719-970-83	DIODE HSS82		JR019	1-216-296-91	SHORT	
D211	8-719-062-51	DIODE 1PS226-115		JR020	1-216-296-91	SHORT	
D304	8-719-970-83	DIODE HSS82		JR021	1-216-296-91	SHORT	
D305	8-719-970-83	DIODE HSS82		<b>COIL</b>			
D306	8-719-970-83	DIODE HSS82		L002	1-410-682-31	INDUCTOR	470UH
D311	8-719-062-51	DIODE 1PS226-115		L003	1-408-397-00	INDUCTOR	1UH
<b>FERRITE BEAD</b>				L005	1-412-529-11	INDUCTOR	22UH
FB001	1-412-911-11	FERRITE	0UH	L007	1-410-482-31	INDUCTOR	100UH
FB002	1-412-911-11	FERRITE	0UH	L009	1-216-295-91	SHORT	
FB004	1-412-911-11	FERRITE	0UH				
FB005	1-412-911-11	FERRITE	0UH	L010	1-412-911-11	FERRITE	0UH
FB006	1-412-911-11	FERRITE	0UH	L101	1-410-750-41	INDUCTOR	0.47UH
FB009	1-412-911-11	FERRITE	0UH	L102	1-412-052-21	INDUCTOR CHIP	1UH
FB010	1-412-911-11	FERRITE	0UH	L201	1-410-750-41	INDUCTOR	0.47UH
FB011	1-412-911-11	FERRITE	0UH	L301	1-410-750-41	INDUCTOR	0.47UH
FB012	1-412-911-11	FERRITE	0UH	<b>TRANSISTOR</b>			
FB014	1-412-911-11	FERRITE	0UH	Q001	8-729-046-80	TRANSISTOR 2SC4634LS-CB11	
FB015	1-412-911-11	FERRITE	0UH	Q006	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
FB016	1-412-911-11	FERRITE	0UH	<b>RESISTOR</b>			
FB017	1-412-911-11	FERRITE	0UH	R002	1-216-043-91	RES, CHIP	560 5% 1/10W
FB018	1-412-911-11	FERRITE	0UH	R003	1-216-067-00	RES, CHIP	5.6K 5% 1/10W
FB019	1-412-911-11	FERRITE	0UH	R004	1-216-055-00	RES, CHIP	1.8K 5% 1/10W
FB102	1-216-295-91	SHORT		R005	1-216-121-91	RES, CHIP	1M 5% 1/10W
FB202	1-216-295-91	SHORT		R006	1-216-025-91	RES, CHIP	100 5% 1/10W
FB302	1-216-295-91	SHORT					
<b>FILTER</b>							
FL002	1-412-911-11	FERRITE	0UH				








**Note:** The components identified by shading and mark **Δ** are critical for safety. Replace only with part number specified.

**Note:** Les composants identifiés par un trame et une marque **Δ** sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

REF. NO.	PART NO.	DESCRIPTION	REMARK				REF. NO.	PART NO.	DESCRIPTION	REMARK			
C503	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V		C555 Δ	1-130-495-00	FILM	0.1MF	5%	50V	
C504	1-102-030-00	CERAMIC	330PF	10%	500V		C556 Δ	1-163-259-91	CERAMIC CHIP	220PF	5%	50V	
C505	1-109-878-11	CERAMIC	15PF	5%	2KV		C557	1-107-907-11	ELECT	22MF	20%	50V	
C506	1-126-960-11	ELECT	1MF	20%	50V		C558 Δ	1-126-960-11	ELECT	1MF	20%	50V	
C507	1-131-653-11	FILM	0.19MF	5%	400V		C559	1-137-368-11	FILM	0.0047MF	5%	50V	
C508	1-128-526-11	ELECT	100MF	20%	25V		C560	1-119-859-71	FILM	0.36MF	5%	250V	
C509	1-162-117-00	CERAMIC	100PF	10%	500V		C561 Δ	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V	
C510	1-102-228-00	CERAMIC	470PF	10%	500V		C562	1-128-526-11	ELECT	100MF	20%	16V	
C511	1-117-663-11	FILM	0.22MF	5%	250V		C563	1-163-005-11	CERAMIC CHIP	470PF	10%	50V	
C512	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V		C564	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V	
C513	1-107-906-11	ELECT	10MF	20%	50V		C566	1-128-551-11	ELECT	22MF	20%	25V	
C514	1-115-521-11	FILM	0.82MF	5%	250V		C568	1-136-060-00	FILM	0.047MF	5%	400V	
C515	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V		C569	1-130-495-00	FILM	0.1MF	5%	50V	
C516	1-119-862-11	FILM	0.3MF	5%	250V		C570	1-128-526-11	ELECT	100MF	20%	25V	
C517	1-137-370-11	FILM	0.01MF	5%	50V		C572	1-107-651-11	ELECT	4.7MF	20%	250V	
C518	1-117-954-11	FILM	4300PF	3%	1.8KV		C573	1-107-651-11	ELECT	4.7MF	20%	250V	
C519	1-117-621-11	FILM	1200PF	3%	1.2KV		C574	1-117-879-91	CAPACITOR	0.01MF	10%	250V	
C520	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V		C575	1-110-641-51	ELECT	33MF	20%	200V	
C521	1-107-444-11	CERAMIC	100PF	5%	2KV		C576	1-163-243-11	CERAMIC CHIP	47PF	5%	50V	
C522	1-136-684-51	MYLAR	0.0022MF	10%	100V		C577	1-115-349-51	CERAMIC	0.01MF		2KV	
C523	1-117-660-21	FILM	0.12MF	5%	250V		C578	1-107-974-11	CERAMIC	47PF	5%	2KV	
C524	1-110-641-51	ELECT	33MF	20%	200V		C579	1-109-879-11	CERAMIC	22PF	5%	2KV	
C525	1-136-060-00	FILM	0.047MF	5%	400V		C580	1-137-370-11	FILM	0.01MF	5%	50V	
C526	1-165-137-41	CERAMIC	4700PF	10%	500V		C582	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V	
C527	1-117-879-91	CAPACITOR	0.01MF	10%	250V		C583	1-130-495-00	FILM	0.1MF	5%	50V	
C528	1-115-349-51	CERAMIC	0.01MF		2KV		C601	1-104-664-11	ELECT	47MF	20%	10V	
C529	1-136-060-00	FILM	0.047MF	5%	400V		C602	1-162-117-00	CERAMIC	100PF	10%	500V	
C530	1-117-660-21	FILM	0.12MF	5%	250V		C603	1-126-942-61	ELECT	1000MF	20%	25V	
C531	1-119-858-11	FILM	0.068MF	5%	250V		C604 Δ	1-104-708-11	FILM	0.47MF	20%	250V	
C532 Δ	1-137-401-11	FILM	0.22MF	10%	100V		C605 Δ	1-104-708-11	FILM	0.47MF	20%	250V	
C534 Δ	1-137-419-11	FILM	0.033MF	10%	100V		C606 Δ	1-113-912-11	CERAMIC	0.0047MF	20%	250V	
C535	1-130-495-00	FILM	0.1MF	5%	50V		C608	1-104-653-11	ELECT	220MF	20%	16V	
C536	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V		C610	1-107-852-11	ELECT (BLOCK)	330MF	20%	400V	
C538	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V		C611	1-163-007-11	CERAMIC CHIP	680PF	10%	50V	
C539 Δ	1-137-150-11	FILM	0.01MF	10%	100V		C612 Δ	1-106-379-12	MYLAR	0.033MF	10%	200V	
C540 Δ	1-136-203-11	FILM	10000PF	5%	630V		C613 Δ	1-162-115-00	CERAMIC	330PF	10%	2KV	
C541	1-126-963-11	ELECT	4.7MF	20%	50V		C614	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	
C542 Δ	1-126-964-11	ELECT	10MF	20%	50V		C615	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V	
C543	1-163-251-11	CERAMIC CHIP	100PF	5%	50V		C616	1-107-907-11	ELECT	22MF	20%	25V	
C544 Δ	1-137-370-11	FILM	0.01MF	5%	50V		C617	1-107-907-11	ELECT	22MF	20%	25V	
C545	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V		C618	1-130-495-00	FILM	0.1MF	5%	50V	
C546	1-163-259-91	CERAMIC CHIP	220PF	5%	50V		C619	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V	
C547	1-107-902-11	ELECT	1MF	20%	50V		C620	1-162-117-00	CERAMIC	100PF	10%	500V	
C548	1-130-471-00	FILM	0.001MF	5%	50V		C621	1-104-712-11	ELECT	47MF	0	200V	
C549	1-137-375-11	FILM	0.068MF	5%	50V		C622	1-107-933-11	ELECT	100MF	20%	100V	
C550	1-126-933-11	ELECT	100MF	20%	16V		C623	1-107-889-11	ELECT	220MF	20%	25V	
C551	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V		C624	1-126-936-11	ELECT	3300MF	20%	16V	
C552	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V		C625	1-128-339-11	ELECT	2200MF	20%	16V	
C553 Δ	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V		C626	1-104-653-11	ELECT	220MF	20%	16V	
C554 Δ	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V		C627	1-107-889-11	ELECT	220MF	20%	10V	

**Note:** Les composants identifiés par un trame et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifique.

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**Note:** Les composants identifiés par un trame et une marque  sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

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**Note:** The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.

**Note:** Les composants identifiés par un trame et une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
IC608	8-759-231-53	IC TA7805S		L503	1-411-594-41	INDUCTOR 5MMH	
IC701	8-759-595-52	IC CXA8070AP		L505	1-412-552-11	INDUCTOR 2.2MMH	
IC702	8-749-015-00	IC STK391-110		L506	1-412-548-31	INDUCTOR 820UH	
IC703	8-759-822-38	IC LA6510		L507	1-414-856-11	INDUCTOR 10UH	
IC901 $\Delta$	8-759-596-69	IC CXD9528S		L508	1-419-198-21	COIL, HORIZONTAL LINEARITY	
IC902	8-759-594-40	IC CXA8071CP		L509	1-419-198-21	COIL, HORIZONTAL LINEARITY	
IC904	8-759-352-91	IC PST9143NL		L510	1-416-367-11	COIL, HORIZONTAL CENTER	
IC905	8-759-527-76	IC M24C08-MN6T		L511	1-414-187-11	INDUCTOR 47UH	
<b>CHIP CONDUCTOR</b>				L513	1-414-856-11	INDUCTOR 10UH	
JR001	1-216-296-91	SHORT		L602	1-412-529-11	INDUCTOR 22UH	
JR003	1-216-295-91	SHORT		L603	1-412-537-31	INDUCTOR 100UH	
JR004	1-216-295-91	SHORT		L604	1-406-665-11	INDUCTOR 100UH	
JR006	1-216-295-91	SHORT		L606	1-406-665-11	INDUCTOR 100UH	
JR007	1-216-295-91	SHORT		<b>FILTER</b>			
JR008	1-216-296-91	SHORT		LF602 $\Delta$	1-429-180-11	TRANSFORMER, LINE FILTER	
JR009	1-216-295-91	SHORT		<b>TRANSISTOR</b>			
JR010	1-216-296-91	SHORT		Q501	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
JR011	1-216-296-91	SHORT		Q502	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R	
JR012	1-216-295-91	SHORT		Q503	8-729-035-54	TRANSISTOR 2SJ449	
JR013	1-216-295-91	SHORT		Q504	8-729-031-89	TRANSISTOR 2SC3941A-Q(TA)	
JR014	1-216-296-91	SHORT		Q505	8-729-119-76	TRANSISTOR 2SA1175-HFE	
JR015	1-216-295-91	SHORT		Q506	8-729-119-76	TRANSISTOR 2SA1175-HFE	
JR016	1-216-295-91	SHORT		Q507	8-729-049-17	TRANSISTOR 2SC5302-SONY-CC	
JR017	1-216-295-91	SHORT		Q508	8-729-119-78	TRANSISTOR 2SC2785-HFE	
JR018	1-216-295-91	SHORT		Q510	8-729-046-60	TRANSISTOR 2SK2605LBS-SONY	
JR019	1-216-296-91	SHORT		Q511	8-729-042-34	TRANSISTOR IRFU110A	
JR020	1-216-296-91	SHORT		Q512	8-729-047-72	TRANSISTOR 2SK3155-01	
JR021	1-216-296-91	SHORT		Q513	8-729-043-41	TRANSISTOR 2SK2098-01MR-F 119	
JR022	1-216-295-91	SHORT		Q514	8-729-047-72	TRANSISTOR 2SK3155-01	
JR023	1-216-295-91	SHORT		Q515	8-729-047-72	TRANSISTOR 2SK3155-01	
JR024	1-216-296-91	SHORT		Q516	8-729-047-72	TRANSISTOR 2SK3155-01	
JR025	1-216-296-91	SHORT		Q518	8-729-140-50	TRANSISTOR 2SC3209LK	
JR027	1-216-296-91	SHORT		Q519	8-729-029-68	TRANSISTOR DTC114TSA	
JR028	1-216-296-91	SHORT		Q520	8-729-035-54	TRANSISTOR 2SJ449	
JR029	1-216-295-91	SHORT		Q521	8-729-119-76	TRANSISTOR 2SA1175-HFE	
JR030	1-216-295-91	SHORT		Q522	8-729-027-23	TRANSISTOR DTA114EKA-T146	
JR032	1-216-296-91	SHORT		Q524	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R	
JR033	1-216-296-91	SHORT		Q525	8-729-119-78	TRANSISTOR 2SC2785-HFE	
JR034	1-216-295-91	SHORT		Q601	8-729-029-92	TRANSISTOR DTC143ESA	
JR038	1-216-296-91	SHORT		Q602 $\Delta$	8-729-048-61	TRANSISTOR 2SK2843LBS-SONY	
JR602	1-216-295-91	SHORT		Q603	8-729-900-53	TRANSISTOR DTC114EK	
JR604	1-216-295-91	SHORT		Q604	8-729-119-78	TRANSISTOR 2SC2785-HFE	
JR606	1-216-295-91	SHORT		Q605	8-729-900-53	TRANSISTOR DTC114EK	
<b>COIL</b>				Q903	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
L501	1-406-663-21	INDUCTOR 47UH					
L502	1-406-663-21	INDUCTOR 47UH					





**Note:** The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.

**Note:** Les composants identifiés par un trame et une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

REF. NO.	PART NO.	DESCRIPTION	REMARK
<b>RESISTOR</b>			
R401	1-249-383-11	CARBON	1.5 5% 1/4W F
R402	1-215-866-11	METAL OXIDE	330 5% 1W F
R403	1-214-661-21	METAL	1.5 1% 1/4W
R404	1-216-669-11	METAL CHIP	5.6K 0.50% 1/10W
R405	1-214-661-21	METAL	1.5 1% 1/4W
R406	1-216-677-11	METAL CHIP	12K 0.50% 1/10W
R407	1-216-057-00	RES, CHIP	2.2K 5% 1/10W
R408	1-216-073-00	RES, CHIP	10K 5% 1/10W
R409	1-216-669-11	METAL CHIP	5.6K 0.50% 1/10W
R410	1-216-677-11	METAL CHIP	12K 0.50% 1/10W
R500	1-249-377-11	CARBON	0.47 5% 1/4W F
R501	1-216-025-91	RES, CHIP	100 5% 1/10W
R502	1-218-758-11	METAL CHIP	180K 0.50% 1/10W
R503	1-216-675-91	METAL CHIP	10K 0.50% 1/10W
R504	1-249-377-11	CARBON	0.47 5% 1/4W F
R505	1-216-073-00	RES, CHIP	10K 5% 1/10W
R506	1-215-481-00	METAL	330K 1% 1/4W
R507	1-215-431-00	METAL	2.7K 1% 1/4W
R508	1-247-807-31	CARBON	100 5% 1/4W
R509	1-247-863-91	CARBON	22K 5% 1/4W
R510 $\Delta$	1-215-437-00	METAL	4.7K 1% 1/4W
R511	1-249-381-11	CARBON	1 5% 1/4W F
R512	1-249-389-11	CARBON	4.7 5% 1/4W
R513	1-215-888-00	METAL OXIDE	220 5% 2W F
R514	1-216-081-00	RES, CHIP	22K 5% 1/10W
R515	1-249-417-11	CARBON	1K 5% 1/4W F
R516	1-214-844-81	METAL	150 1% 1/2W
R517	1-216-393-00	METAL OXIDE	2.2 5% 3W F
R518	1-216-393-00	METAL OXIDE	2.2 5% 3W F
R519	1-215-463-00	METAL	56K 1% 1/4W
R520	1-249-397-11	CARBON	22 5% 1/4W F
R521	1-249-417-11	CARBON	1K 5% 1/4W F
R522	1-249-401-11	CARBON	47 5% 1/4W
R523	1-215-463-00	METAL	56K 1% 1/4W
R524	1-215-463-00	METAL	56K 1% 1/4W
R525	1-249-417-11	CARBON	1K 5% 1/4W F
R527	1-249-429-11	CARBON	10K 5% 1/4W
R528	1-216-081-00	RES, CHIP	22K 5% 1/10W
R529	1-249-429-11	CARBON	10K 5% 1/4W F
R530	1-216-474-11	METAL OXIDE	82 5% 3W F
R531	1-216-474-11	METAL OXIDE	82 5% 3W F
R532	1-249-385-11	CARBON	2.2 5% 1/4W F
R533	1-249-417-11	CARBON	1K 5% 1/4W F
R534	1-249-405-11	CARBON	100 5% 1/4W F
R535	1-215-463-00	METAL	56K 1% 1/4W
R536	1-249-417-11	CARBON	1K 5% 1/4W F
R537	1-215-463-00	METAL	56K 1% 1/4W
R538	1-215-905-11	METAL OXIDE	10 5% 3W F

REF. NO.	PART NO.	DESCRIPTION	REMARK
R539	1-215-905-11	METAL OXIDE	10 5% 3W F
R541 $\Delta$	1-215-421-00	METAL	1K 1% 1/4W
R542 $\Delta$	1-215-421-00	METAL	1K 1% 1/4W
R543 $\Delta$	1-249-389-11	CARBON	4.7 5% 1/4W F
R544 $\Delta$	1-247-903-00	CARBON	1M 5% 1/4W
R545	1-216-691-11	METAL CHIP	47K 0.50% 1/10W
R546	1-215-457-00	METAL	33K 1% 1/4W
R547 $\Delta$	1-215-477-00	METAL	220K 1% 1/4W
R548	1-215-423-00	METAL	1.2K 1% 1/4W
R549 $\Delta$	1-215-464-00	METAL	62K 1% 1/4W
R550	1-215-423-00	METAL	1.2K 1% 1/4W
R551	1-216-687-11	METAL CHIP	33K 0.50% 1/10W
R552 $\Delta$	1-215-463-00	METAL	56K 1% 1/4W
R553	1-216-698-11	METAL CHIP	91K 0.50% 1/10W
R554	1-218-756-11	METAL CHIP	150K 0.50% 1/10W
R556	1-216-691-11	METAL CHIP	47K 0.50% 1/10W
R557	1-216-079-00	RES, CHIP	18K 5% 1/10W
R558	1-216-671-11	METAL CHIP	6.8K 0.50% 1/10W
R559	1-216-661-11	METAL CHIP	2.7K 0.50% 1/10W
R560	1-216-679-11	METAL CHIP	15K 0.50% 1/10W
R561	1-216-474-11	METAL OXIDE	82 5% 3W F
R562	1-215-451-00	METAL	18K 1% 1/4W
R563	1-249-383-11	CARBON	1.5 5% 1/4W F
R564 $\Delta$	1-216-089-91	RES, CHIP	47K 5% 1/10W
R565	1-215-481-00	METAL	330K 1% 1/4W
R566	1-215-859-00	METAL OXIDE	22 5% 1W F
R567 $\Delta$	1-216-073-00	RES, CHIP	10K 5% 1/10W
R568 $\Delta$	1-249-437-11	CARBON	47K 5% 1/4W
R569	1-216-643-11	METAL CHIP	470 0.50% 1/10W
R570	1-249-417-11	CARBON	1K 5% 1/4W
R571	1-215-926-00	METAL OXIDE	33K 5% 3W F
R572	1-249-437-11	CARBON	47K 5% 1/4W
R573	1-247-887-00	CARBON	220K 5% 1/4W
R574	1-249-421-11	CARBON	2.2K 5% 1/4W
R575	1-260-314-11	CARBON	68 5% 1/2W
R576	1-249-437-11	CARBON	47K 5% 1/4W
R577	1-216-471-11	METAL OXIDE	27 5% 3W F
R578	1-216-448-11	METAL OXIDE	39 5% 2W F
R579	1-247-883-00	CARBON	150K 5% 1/4W
R580	1-216-077-91	RES, CHIP	15K 5% 1/10W
R581	1-249-429-11	CARBON	10K 5% 1/4W
R582	1-249-402-11	CARBON	56 5% 1/4W F
R583	1-216-073-00	RES, CHIP	10K 5% 1/10W
R584	1-216-065-91	RES, CHIP	4.7K 5% 1/10W
R585	1-249-417-11	CARBON	1K 5% 1/4W
R586	1-249-421-11	CARBON	2.2K 5% 1/4W
R587	1-249-417-11	CARBON	1K 5% 1/4W
R589	1-249-425-11	CARBON	4.7K 5% 1/4W
R590	1-215-453-00	METAL	22K 1% 1/4W
R591	1-214-844-81	METAL	150 1% 1/2W

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REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
R592	1-214-844-81	METAL	150 1% 1/2W	R647	1-216-073-00	RES, CHIP	10K 5% 1/10W
R594	1-216-033-00	RES, CHIP	220 5% 1/10W	R648	1-216-669-11	METAL CHIP	5.6K 0.50% 1/10W
R595 $\Delta$	1-215-477-00	METAL	220K 1% 1/4W	R649	1-216-663-11	METAL CHIP	3.3K 0.50% 1/10W
R596	1-215-423-00	METAL	1.2K 1% 1/4W	R654	1-216-344-00	METAL OXIDE	0.39 5% 1W F
R597	1-259-880-11	CARBON	2.2M 5% 1/4W	R655	1-247-807-31	CARBON	100 5% 1/4W
R599	1-249-417-11	CARBON	1K 5% 1/4W	R656	1-215-893-11	METAL OXIDE	1.5K 5% 2W F
R600	1-205-998-11	CEMENTED	1 5% 10W	R660	1-260-119-11	CARBON	47K 5% 1/2W
R602	1-219-513-11	CARBON	4.7M 5% 1/2W	R661	1-215-902-11	METAL OXIDE	47K 5% 2W F
R603	1-249-403-11	CARBON	68 5% 1/4W	R663	1-216-663-11	METAL CHIP	3.3K 0.50% 1/10W
R604 $\Delta$	1-220-827-91	REGISTER	560K 5% 1/2W	R665	1-216-663-11	METAL CHIP	3.3K 0.50% 1/10W
R605	1-220-778-81	FUSIBLE	0.1 10% 1/2W	R703	1-249-410-11	CARBON	270 5% 1/4W
R606	1-218-768-11	METAL CHIP	470K 0.50% 1/10W	R704	1-216-673-11	METAL CHIP	8.2K 0.50% 1/10W
R607	1-216-081-00	RES, CHIP	22K 5% 1/10W	R705	1-216-667-11	METAL CHIP	4.7K 0.50% 1/10W
R608	1-215-479-00	METAL	270K 1% 1/4W	R706	1-216-667-11	METAL CHIP	4.7K 0.50% 1/10W
R609	1-216-665-11	METAL CHIP	3.9K 0.50% 1/10W	R707	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R610	1-216-651-11	METAL CHIP	1K 0.50% 1/10W	R708	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R611	1-216-009-91	RES, CHIP	22 5% 1/10W	R709	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R612	1-247-791-91	CARBON	22 5% 1/4W	R710	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R613 $\Delta$	1-219-513-11	CARBON	4.7M 5% 1/2W	R711	1-216-346-00	METAL OXIDE	0.56 5% 1W F
R614	1-216-345-11	METAL OXIDE	0.47 5% 1W F	R712	1-215-860-11	METAL OXIDE	33 5% 1W F
R615	1-216-117-00	RES, CHIP	680K 5% 1/10W	R713	1-216-347-11	METAL OXIDE	0.68 5% 1W F
R616	1-216-121-91	RES, CHIP	1M 5% 1/10W	R716	1-215-860-11	METAL OXIDE	33 5% 1W F
R617	1-216-025-91	RES, CHIP	100 5% 1/10W	R717	1-216-353-00	METAL OXIDE	2.2 5% 1W F
R618	1-216-635-11	METAL CHIP	220 0.50% 1/10W	R718	1-215-863-11	METAL OXIDE	100 5% 1W F
R619	1-215-893-11	METAL OXIDE	1.5K 5% 2W F	R719	1-216-679-11	METAL CHIP	15K 0.50% 1/10W
R620	1-216-687-11	METAL CHIP	33K 0.50% 1/10W	R724	1-216-422-11	METAL OXIDE	18 5% 1W F
R621	1-216-098-00	RES, CHIP	110K 5% 1/10W	R727	1-216-679-11	METAL CHIP	15K 0.50% 1/10W
R622	1-247-791-91	CARBON	22 5% 1/4W	R728	1-215-863-11	METAL OXIDE	100 5% 1W F
R623	1-216-615-91	METAL CHIP	33 0.50% 1/10W	R729	1-216-353-00	METAL OXIDE	2.2 5% 1W F
R624	1-216-611-11	METAL CHIP	22 0.50% 1/10W	R730	1-216-421-11	METAL OXIDE	12 5% 1W F
R625	1-260-332-51	CARBON	2.2K 5% 1/2W	R731	1-216-295-91	SHORT	
R626	1-216-057-00	RES, CHIP	2.2K 5% 1/10W	R733	1-216-295-91	SHORT	
R627	1-249-377-11	CARBON	0.47 5% 1/4W F	R735	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R628	1-216-674-11	METAL CHIP	9.1K 0.50% 1/10W	R737	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R629	1-249-441-11	CARBON	100K 5% 1/4W	R739	1-216-073-00	RES, CHIP	10K 5% 1/10W
R630 $\Delta$	1-211-874-71	FUSIBLE MELF	0.12 10% 1/2W	R741	1-249-377-11	CARBON	0.47 5% 1/4W F
R631 $\Delta$	1-211-874-71	FUSIBLE MELF	0.12 10% 1/2W	R743	1-249-377-11	CARBON	0.47 5% 1/4W F
R632 $\Delta$	1-211-874-71	FUSIBLE MELF	0.12 10% 1/2W	R745	1-216-298-00	RES, CHIP	2.2 5% 1/10W
R633	1-249-429-11	CARBON	10K 5% 1/4W	R747	1-216-298-00	RES, CHIP	2.2 5% 1/10W
R634 $\Delta$	1-211-874-71	FUSIBLE MELF	0.12 10% 1/2W	R753	1-216-679-11	METAL CHIP	15K 0.50% 1/10W
R635	1-215-925-11	METAL OXIDE	22K 5% 3W F	R755	1-216-667-11	METAL CHIP	4.7K 0.50% 1/10W
R636	1-260-119-11	CARBON	47K 5% 1/2W	R903	1-216-049-91	RES, CHIP	1K 5% 1/10W
R637	1-215-902-11	METAL OXIDE	47K 5% 2W F	R904	1-216-049-91	RES, CHIP	1K 5% 1/10W
R638 $\Delta$	1-211-874-71	FUSIBLE MELF	0.12 10% 1/2W	R905	1-216-295-91	SHORT	
R639 $\Delta$	1-211-874-71	FUSIBLE MELF	0.12 10% 1/2W	R906	1-216-073-00	RES, CHIP	10K 5% 1/10W
R640	1-249-381-11	CARBON	1 5% 1/4W F	R907	1-260-087-81	CARBON	100 5% 1/2W
R642	1-216-641-11	METAL CHIP	390 0.50% 1/10W	R908	1-216-057-00	RES, CHIP	2.2K 5% 1/10W
R643	1-215-467-00	METAL	82K 1% 1/4W	R909	1-216-057-00	RES, CHIP	2.2K 5% 1/10W
R645	1-216-675-91	METAL CHIP	10K 0.50% 1/10W	R912	1-216-049-91	RES, CHIP	1K 5% 1/10W
R646	1-216-689-11	RES, CHIP	39K 5% 1/10W	R913	1-216-025-91	RES, CHIP	100 5% 1/10W



**Note:** The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.

**Note:** The components identified by  $\Delta$  in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
R914	1-216-025-91	RES, CHIP	100 5% 1/10W	<b>TRANSFORMER</b>			
R915	1-216-065-91	RES, CHIP	4.7K 5% 1/10W	T501 $\Delta$	1-453-311-11	FBT ASSY NX-4404//X4L4	
R916	1-216-077-91	RES, CHIP	15K 5% 1/10W	T503	1-433-979-11	TRANSFORMER, FERRITE (DFT)	
R917	1-216-077-91	RES, CHIP	15K 5% 1/10W	T504	1-433-978-11	TRANSFORMER, HORIZONTAL DRIVE	
R918	1-216-049-91	RES, CHIP	1K 5% 1/10W	T505	1-431-413-11	TRANSFORMER, FERRITE (HST)	
R919	1-216-025-91	RES, CHIP	100 5% 1/10W	T601 $\Delta$	1-433-847-12	TRANSFORMER, CONVERTER (SRT)	
R920	1-216-049-91	RES, CHIP	1K 5% 1/10W	<b>THERMISTOR</b>			
R921	1-216-295-91	SHORT		TH501	1-807-796-11	THERMISTOR	
R922	1-216-073-00	RES, CHIP	10K 5% 1/10W	TH600 $\Delta$	1-809-827-11	THERMISTOR, NTC	
R923	1-216-295-91	SHORT		TH601	1-803-540-11	THERMISTOR	
R924	1-216-025-91	RES, CHIP	100 5% 1/10W	<b>VARISTOR</b>			
R925	1-216-065-91	RES, CHIP	4.7K 5% 1/10W	VA601 $\Delta$	1-801-268-51	VARISTOR ERZV14D471	
R926	1-216-025-91	RES, CHIP	100 5% 1/10W	<b>CRYSTAL</b>			
R927	1-216-295-91	SHORT		X901	1-767-641-11	VIBRATOR, CRYSTAL	
R928	1-216-025-91	RES, CHIP	100 5% 1/10W	X902	1-767-933-11	OSCILLATOR, CERAMIC	
R929	1-216-065-91	RES, CHIP	4.7K 5% 1/10W	<div>H</div>			
R931	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W				
R932	1-216-077-91	RES, CHIP	15K 5% 1/10W	<b>A-1372-633-A H BOARD, COMPLETE</b>			
R933	1-249-417-11	CARBON	1K 5% 1/4W	<b>CAPACITOR</b>			
R934	1-249-429-11	CARBON	10K 5% 1/4W	C801	1-104-664-11	ELECT 47MF 20% 10V	
R935	1-216-025-91	RES, CHIP	100 5% 1/10W	<b>CONNECTOR</b>			
R936	1-216-025-91	RES, CHIP	100 5% 1/10W	CN801 *	1-564-510-11	PLUG, CONNECTOR 7P	
R937	1-216-025-91	RES, CHIP	100 5% 1/10W	<b>DIODE</b>			
R938	1-216-025-91	*RES,CHIP	100 5% 1/10W	D803	8-719-064-11	DIODE SPR-325MVW	
R940	1-216-661-11	METAL CHIP	2.7K 0.50% 1/10W	<b>TRANSISTOR</b>			
R943	1-249-413-11	CARBON	470 5% 1/4W	Q801	8-729-119-78	TRANSISTOR 2SC2785-HFE	
R951	1-216-025-91	RES, CHIP	100 5% 1/10W	Q802	8-729-119-78	TRANSISTOR 2SC2785-HFE	
R953	1-216-073-00	RES, CHIP	10K 5% 1/10W	<b>RESISTOR</b>			
R954	1-216-073-00	RES, CHIP	10K 5% 1/10W	R801	1-215-417-00	METAL 680 1% 1/4W	
R957	1-216-017-91	RES, CHIP	47 5% 1/10W	R802	1-215-421-00	METAL 1K 1% 1/4W	
R958	1-216-017-91	RES, CHIP	47 5% 1/10W	R803	1-215-427-00	METAL 1.8K 1% 1/4W	
<b>VARIABLE RESISTOR</b>				R804	1-215-433-00	METAL 3.3K 1% 1/4W	
$\Delta$ RV501 $\Delta$	1-241-767-21	RES, ADJ, CERMET	100K				
<b>RELAY</b>							
RY500	1-515-669-21	RELAY					
RY601 $\Delta$	1-755-067-21	RELAY					
<b>SWITCH</b>							
S602 $\Delta$	1-771-757-11	SWITCH, PUSH (1 KEY)					
S901	1-692-431-21	SWITCH, TACTILE					
<b>SPARK GAP</b>							
SG501	1-519-422-11	GAP, SPARK					





REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
R805	1-247-807-31	CARBON	100 5% 1/4W				
R806	1-247-807-31	CARBON	100 5% 1/4W				
R807	1-249-411-11	CARBON	330 5% 1/4W				
R808	1-249-413-11	CARBON	470 5% 1/4W				
<b>SWITCH</b>							
S801	1-771-734-11	SWITCH, TACTILE					
<b>MISCELLANEOUS</b>							
△	1-419-092-11	COIL, DEGAUSSING					
△	1-452-923-41	NECK ASSEMBLY (NA2915)					
△	1-453-311-11	FLYBACK TRANSFORMER ASSY, NX-4404//X4L4					
△	1-790-568-11	CORD SET, POWER					
*	1-790-038-21	CABLE ASSY (15P DSUB CONNECTOR)					
	3-704-372-31	HOLDER, HV CABLE					
*	3-867-254-11	MANUAL, INSTRUCTION					
	4-045-123-01	HOLDER, DEGAUSSING COIL					
△	8-738-550-61	ITC ASSY, 17TKB-R1					

**NOTES:**

[illegible]





# SERVICE MANUAL

# CPD-E200

**FOR VAIO MODEL ONLY**

*CPD-E200*  
*US Model*  
*Canadian Model*  
*Chassis No. SCC-L31A-A*

## D99C CHASSIS

### SUPPLEMENT-1

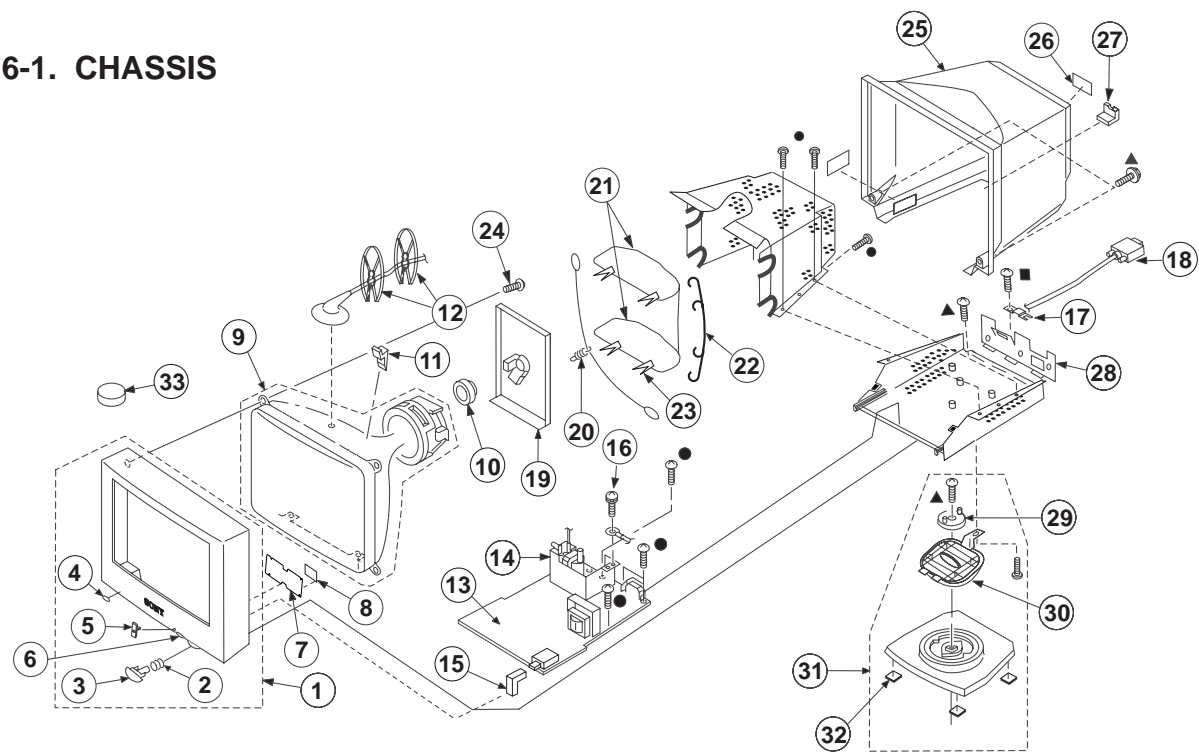
**Subject: Exploded View Parts List**

**Correct the service manual as shown.  
File this supplement with the service manual.**

TRINITRON® COLOR MONITOR  
**SONY®**

SECTION 6: EXPLODED VIEWS (PAGE 34)

6-1. CHASSIS



The following parts are unique to the VAIO CPD-E200 model and differ in color only. All other mechanical parts are the same as in the original CPD-E200 manual, p/n 9-978-850-01.

REF.NO.	PART NO.	DESCRIPTION	REMARK
1	X-4037-240-3	BEZEL ASSY (for VAIO)	2-5
3	4-071-152-23	BUTTON, POWER (for VAIO)	
4	* 4-071-154-23	BUTTON, RESET (for VAIO)	
6	4-071-155-22	BUTTON, MENU (for VAIO)	
25	* 4-071-147-24	CABINET (for VAIO)	
26	* 4-071-728-11	LABEL, INFORMATION (for VAIO)	
27	* 4-071-156-21	COVER, CABLE (for VAIO)	
30	4-071-149-21	SLIDER (for VAIO)	29, 30, 32
31	X-4037-239-1	BASE ASSY, STAND (for VAIO)	